The Mining Journal

Railway & Commercial Gazette

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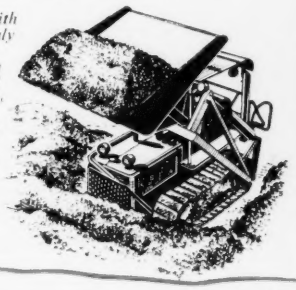

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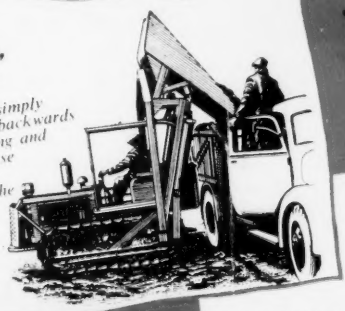

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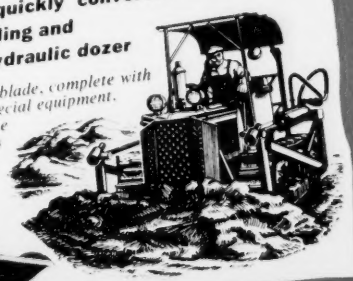

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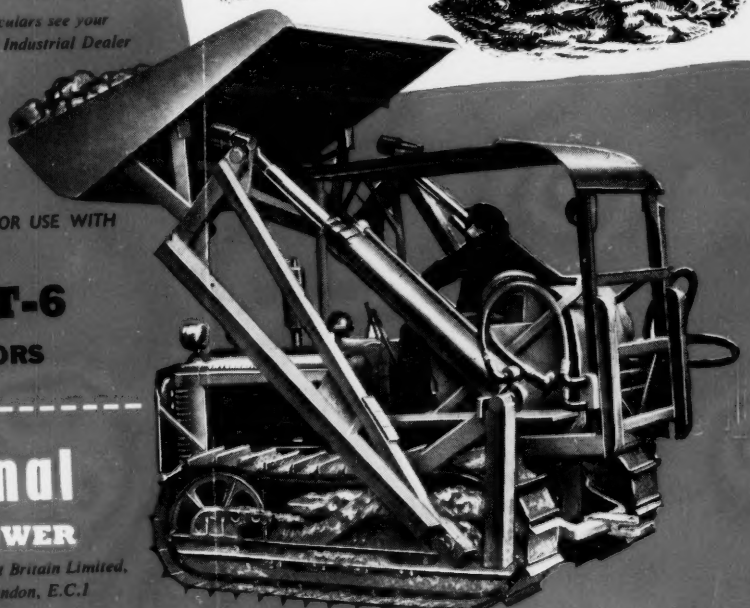

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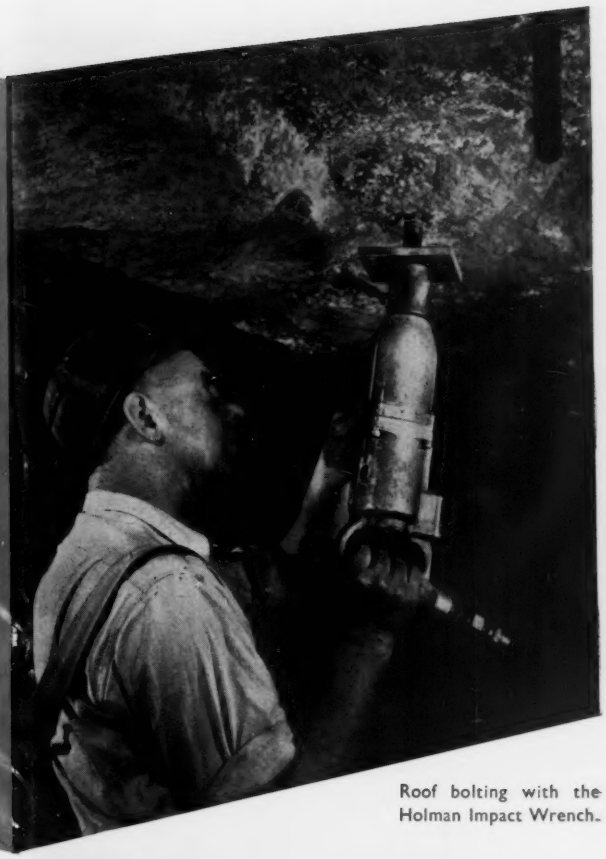

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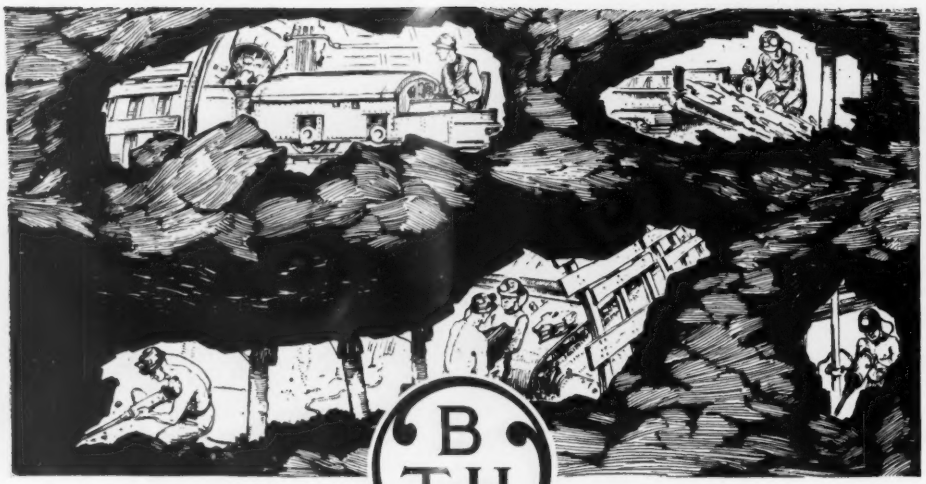

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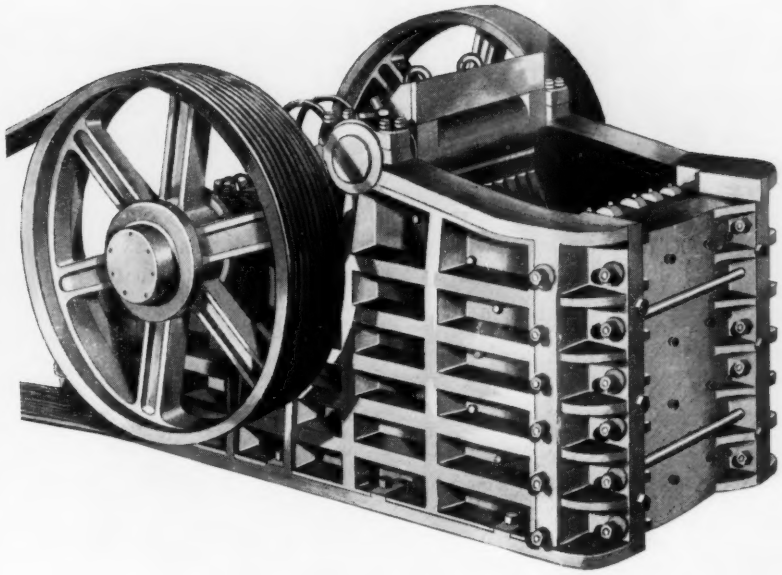

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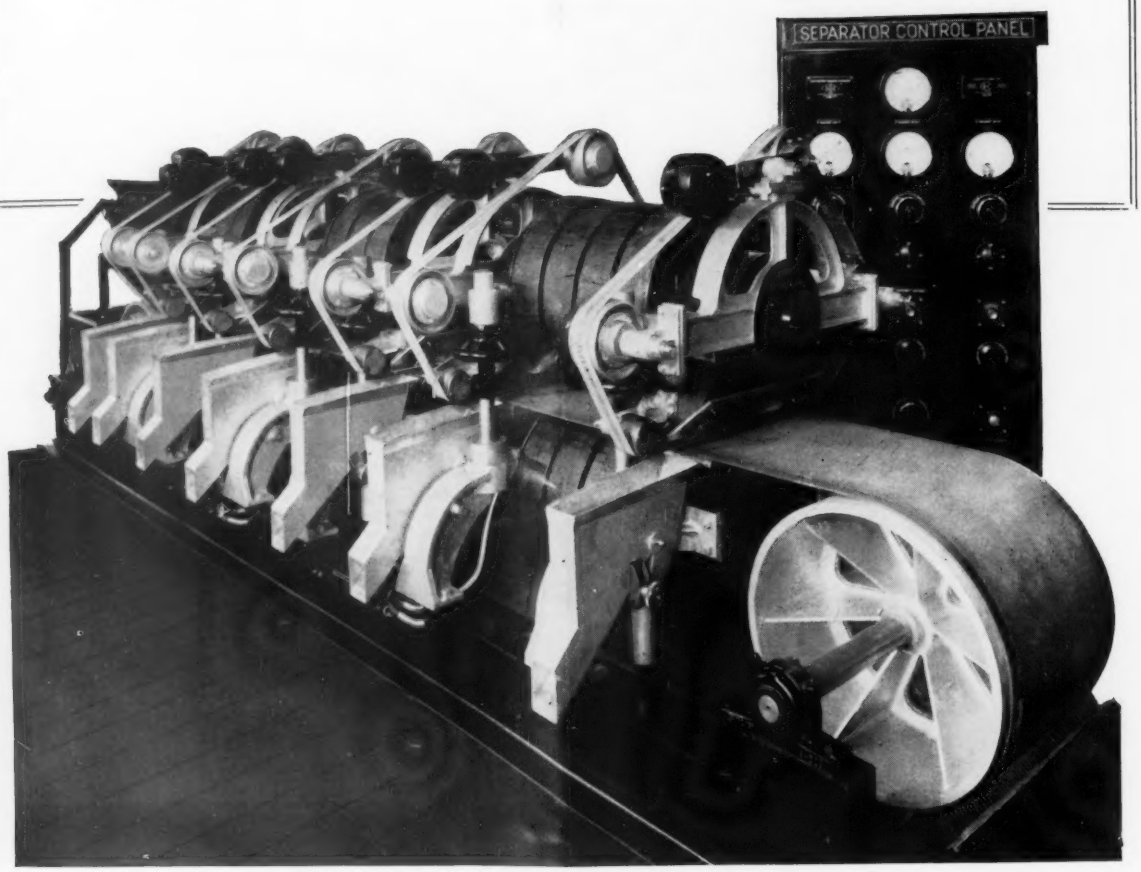

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The Mining Journal

Established 1835

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NOTES AND COMMENTS

Rival for Kitimat in North-West British Columbia

There are several nice points requiring elucidation to last week's passing reference in these columns that North-West Power Industries, a Canadian subsidiary of Quebec Metallurgical Industries, which is jointly controlled by Frobisher Ltd. and Ventures Ltd.—the parent company of Frobisher—have been granted a conditional water licence from the British Columbia Government to proceed with their plans for developing the headwaters of the Yukon River to serve an industrial site near Tulsequah near the head of Taku Inlet.

Broadly speaking, the Frobisher group are planning to spend more than $700,000,000 to develop 4,300,000 h.p. in this area by building three dams on the Yukon River to develop, as a first stage, 888,000 h.p. by 1962, and send it over a 45-mile transmission line to smelters to be sited on the Taku River. It is understood that Frobisher Ltd., and other associated companies in the Ventures group, plan to establish a network of smelters near the source of the power and at Vancouver B.C. to process iron, steel, nickel, cobalt, and zinc from ore brought in from the group's mining interests in various parts of the world.

One interesting aspect of this plan is that it is practically the same as the earlier proposal put forward by the Aluminum Company of America (Alcoa) to use power generated in Canada to run a huge aluminium smelter at Skagway, Alaska. This plan, as previously announced, was rejected because the Canadian Federal Government, which has jurisdiction over the Yukon River flowing through Yukon territory, refused to allow the export of hydro-electric power to U.S.A. territory. There was, also, of course, the important consideration Canada had to face that, if Alcoa's scheme was implemented, the Aluminum Company of Canada's Kitimat smelter would be operating at a disadvantage as Alcoa's plant, being located on U.S. soil (Skagway, Alaska), would be able to send its aluminium to the United States without payment of the 1½ c. tariff duty.

What is particularly interesting about this project is that Reynolds Metals Corporation are reported as taking a 30 per cent interest in the project. Their participation, though unconfirmed, is thought to be concerned with the construction and operation of an aluminium smelter, on Canadian soil, at Tulsequah. It has not yet been made clear to what the 30 per cent interest refers and it may not necessarily mean 30 per cent of the total power developed at each stage of the project. If, however, Reynold's participation up to 30 per cent actually means 30 per cent of the total h.p. developed, the group's estimated output could be as high as some 300,000 tons of aluminium a year, or somewhat below Kitimat's ultimate capacity of 550,000 tons annually.

Why the Canadian Federal Government is prepared to grant the Frobisher group a water licence and priority permit to proceed with their plans knowing that Reynolds Corporation may be one of the chief participants, is explained away on the grounds that its production will be competing with the Kitimat output on equal terms, its plant being located on Canadian soil would subject any aluminium crossing the border to the 1½ c. per lb. U.S. tariff duty. There is, too, the feeling that as the O.D.M. has dropped its third round expansion programme, any increased U.S. demand for aluminium would be reflected in the offtake from Canadian production. Thus there is the hope that the U.S. Government will accept Canada as a logical low-cost supply source and revise its tariff accordingly.

The Financial Post, of Toronto, Canada, from which much of the basic information for this note has been taken, raises an interesting point in its article on this subject as to the legal situation appertaining to the use of the Yukon River part of which flows down through Alaskan territory. This possible complicating factor arises because the water to be diverted to the power plants above the Taku Inlet is water which flows through Alaska. In the early stages of the project the water diversion can make no significant difference to the water level of the Yukon within Alaskan territory, but when the scheme has been fully developed with a dam as far downstream as Fort Selkirk, the effect on Alaska's water levels will need careful watching. For this reason *The Financial Post* feels that the U.S. Government may request that the project be referred to the International Joint Commission. However, in so far as the Canadian Government's position is concerned their view is that the whole project falls under the Boundary Waters Treaty, article XI of which allows either country to divert the

waters on its side of the boundary even if they do flow naturally across the other's territory.

Although the operation of the aluminium smelter could conceivably absorb 30 per cent of the 4,300,000 h.p. to be ultimately developed, it is believed that the total power developed will provide sufficient spare capacity for the Frobisher group to not only process their own ores but also to serve as the basis for the establishment of a new metallurgical empire in Northern British Columbia. Certainly, there are enough mining companies actively searching for new mineral deposits in the area to absorb this power should their prospecting be successful. Indeed, it has been reported that as many as 35 of the largest Canadian, United States and British mining companies are actively searching for new mineral deposits in Canada's north-west.

Meanwhile, the first unit of Alcan's Kitimat-Kemano plant has been brought into production and the company are proceeding with the task of completing their second and third units, so that long before the Tulsequah plant comes into production, Alcan will have expanded its output appreciably above its present production of an estimated 91,500 tons annually from 280,000 h.p.

These giant projects raise the question of the future demand for aluminium, which undoubtedly will continue to grow so long as price levels are kept low and it is on this basis that these projects are considered worthwhile. Moreover, the enormously increased aluminium production envisaged from Canada over the next decade, may prove to be a decisive factor in lowering the U.S. tariffs.

Strength of Gold and Weakness of Sterling

The current weakness of the sterling-dollar exchange rate, largely attributed to seasonal demands for dollars for payments against commodities, particularly oil and sugar, has been reflected in an appreciable strengthening of the London bullion prices. Indeed, the gold price on the London market is now at the highest level since the market was re-opened last March. Yet there has been no corresponding increase in the free market price for gold in terms of U.S. dollars which has remained steady at a few cents above the official price, strong evidence that the higher gold price now prevailing stems from a seasonal weakness in sterling rather than from any consideration of a new trend of demand developing for the metal.

But there have been some stirrings—no more than that—in demand from the Middle and Far East and from France. The present increased demand from the East can, of course, be explained away by the nervousness created over the Far Eastern situation, particularly the recent verbal vituperations concerning Formosa. While demand for gold from France for hoarding purposes has withered away, the current crisis over the E.D.C. debate has manifested itself in active dealings on the Paris free gold market—the customary course of action taken in that country when confronted with a steadily depreciating franc. The only other source of demand for gold worth noting in the foregoing context is that which arises from time to time from some of the Central European banks. However, the offtake by these institutions in the past few weeks has not been a factor to be reckoned with and, so far as is known, Russia has ceased—for the time being at any rate—to offer gold for sale either here or on the Continent.

The silver price has also risen over the past fortnight and this movement has been put down to the absorption of the very considerable quantities of Russian silver which have come on to the market in recent months. In the absence of further supplies in any quantity from this source, the price has risen sharply on moderate buying from Continental sources.

British Quarrying "Know How" to Benefit Middle East

Derbyshire Stone Ltd., who are not only one of the largest stone quarrying companies in Great Britain but who have also had wide experience in open-cast mining of minerals have now announced their newly initiated, enterprising scheme to use their stone quarrying "know how" to develop suitable quarry sites in the Middle East.

The major premise on which the company's scheme was founded is firmly based on the increasing industrialization in various countries in the Middle East, and the consequent extensive building programme, which will call for vast quantities of stone for a variety of purposes including roads, airport runways and various types of buildings, and as aggregate for concrete and ballast for railway tracks. Certainly, from an economic point of view it is obviously desirable, whenever possible, to use stone quarried locally and the company's consultancy services comprised of a staff of practical geologists, quarrying specialists, engineers, draughtsmen, and chemists will investigate and survey suitable quarry sites at the request of governmental or industrial bodies and make recommendations for their subsequent development, including the layout, design, purchase and erection of the necessary plant and machinery. In suitable cases, the company will also be willing to consider the continuing supervision and control of units opened under their initial guidance. The company's consultancy services are also available for developing virgin mineral deposits by the use of open-cast methods of extraction.

This valuable consultancy service offered by Derbyshire Stone is yet another example of British industry maintaining its traditional policy of selling its "know how" to countries less well versed in certain technical skills. Moreover, it should be borne in mind that such services are as "bread upon the waters," for the success of the scheme will ensure further market outlets for the British manufacturer of mining machinery.

The success of a somewhat similar consultancy service is provided by the record of Powell Duffryn Technical Services, whose activities in this field have been the subject of comment in the *Mining Journal* on several previous occasions. The most recent award procured by this company has been its appointment as advisers to the United Nations Korean Reconstruction Agency—a instrument of the U.N.—to advise on the rehabilitation of Korea's coal mining industry.

Bethlehem Steel Project for S.W. Africa

As long ago as our issue of February 15, 1952, we were able to report in these columns that a steel factory several times the size of Iscor might be erected in the desolate Kaokoveld in northern South West Africa. It was stated at the time that the organization behind this project was the American Bethlehem Steel Corporation. At the beginning of this week, after a silence of more than 30 months, it has been announced that the Bethlehem Steel Corporation will proceed with its proposal to establish in the Kaokoveld a new harbour, railway and iron ore mining installations estimated to cost £30,000,000.

The two year survey of the area conducted by the Corporation resulted in the discovery of two deposits estimated to contain enough iron ore to support mining operations at an extraction rate of 3,000,000 tons annually for 75 years. Several tons of the ore have been shipped to the United States where investigations are being undertaken into the removal of a number of impurities economically.

If a successful solution to this problem is found, the company intends to proceed with its plans to construct a new harbour at Rocky Point and to build a railway line 110 miles long to the iron deposits.

Australia

(From Our Own Correspondent)

Melbourne, August 15.

At the annual meeting of the Australian Mines and Metals Association, the chairman, Mr. O. H. Woodward, said, "The metalliferous industry has now greater opportunities for expansion that ever before." To-day's metal prices would have been remarkable a few years ago, but the staggering rise in costs had changed the picture. However, improvements in mining technique were making it possible to step up production and it should not be hard to prevent further shrinkage in profit margins. Waste in a time of crushing production costs must be prevented, for these were a menace to the Australian economy.

BOOM IN OIL . . .

The discovery of oil last year in the first well drilled at Rough Range, in the Exmouth Gulf country in Western Australia, has led, in the ensuing eight months, to a boom in the flotation of oil exploration companies, and in the market value of their shares. Shares in existing companies, and in those of subsequent flotations, even of companies many months removed from commencement of drilling, have rapidly risen to high premiums and the controlling factor at the moment is the operations of the discovery company, West Australian Petroleum Pty, Ltd., at Exmouth Gulf. The search in Australia—apart from the Rough Range No. 1 well, which tested at the 3,600 ft. horizon, at the rate of 20 bbl. of oil per hour—is highly speculative, but the market value of all companies based on nominal capital has been pushed to the quite unjustified level of £A340,000,000 a figure that even a most phenomenonal success throughout the Commonwealth can scarcely hope to justify. The chances are very encouraging but speculators appear to be quite heedless of the very speculative nature of, and the great risks in, the search for oil.

. . . AND IN URANIUM

Equally speculative is the search for uranium, and here again, shares in the many prospecting companies are at premiums, less than in the case of oil, but still not justified by the speculative nature of the search, and the results so far achieved. The north of the continent contains a great area of country in which indications of radio-active material have been located; some may develop into commercial occurrences, but the great majority may not. The centre of interest for the time has moved from Northern Territory to the Mount Isa and Cloncurry regions of North Queensland, where prospecting indicates the existence of possibly large occurrences of uranium ores. In the Mount Isa field, Mount Isa Mines Ltd. holds a number of leases, which are being actively explored. Australasian Oil Development Ltd. a new flotation, has taken up areas totalling 1,100 acres. On one area an area 120 ft. by 60 ft. has been opened up, which gave, by radiometric survey, an average of .75 per cent uranium oxide; costeaning is in progress, and the first costean 57 ft. long, gave an average assay of .8 per cent uranium oxide. Counts range between 1,000 and 6,000. The ore is uranophane. Northern Uranium Development holds an attractive area from which assays, from samples of unspecified widths, have given from .35 to 1 per cent uranium oxide. Gold Mines of Australia, operating in conjunction with Western Mining Corporation, in the Cloncurry field, has obtained encouraging results for lengths up to 2,000 ft., but their work is not as far advanced as the before-mentioned companies. The Commonwealth Government is the sole buyer of uranium ore, and if developments continue satisfactorily, a buying centre may be established at Mount Isa, where there are facilities for treatment, particularly in the manufacture of sulphuric acid. Prices for uranium oxide are:

Per cent	*£A per ton*	*Per cent*	*£A per ton*
0.25	10	0.9	36
0.3	12	1.0	40
0.4	16	2.0	83
0.5	20	3.0	128
0.6	24	4.0	175
0.7	28	5.0	224
0.8	32	10.0	504

These are the prices payable by the Commonwealth Government.

KALGOORLIE GOLD MINING

Despite the menaces of costs and a static price for gold, the future of the Kalgoorlie goldfield is regarded optimistically. There have been some improvements in the ore reserve position, despite greater output, and such recessions as have been observed are of no significance. The cost position on all mines has been well held, despite rising costs of wages and stores, due to improved mining practice and continued modifications, small possibly in themselves, but important in the aggregate, in milling methods. The merger between Gold Mines of Kalgoorlie (Aust.) Ltd. and South Kalgurli Consolidated Ltd. has been well received as a beneficial move to both companies and to the future of the field. Though there may be some regret at the end of independent existence of a company with a long and meritorious history, the present cost position, and its possible future trend, can be best met by such a move on the part of lesser companies.

There is now some speculation as to whether Boulder Perseverance Ltd. and Kalgoorlie Enterprise Mines Ltd. may yet join the group. Should such further amalgamation occur, it can be expected that North Kalgurli (1912) Ltd. will preserve its separate identity. This mine has become one of the great properties of the Kalgoorlie field, and ore reserves are steadily increasing. Development work continues to disclose good grade ore, at the No. 3 level, on the East lode, crosscutting exposed 17 ft. of ore assaying 11.9 dwt. per ton; driving north at the same level gave 6 dwt. for 39 ft.; at No. 9 level 58 ft. of driving assayed 8.5 dwt. per ton; on the West Branch lode winzing from No. 8 level was in 5.8 dwt. ore. At No. 13 level, on the Main West lode, ore averaged 6.6 dwt. On the East Branch lode at No. 6 level, crosscutting passed through 10 ft. of lode assaying 22.8 dwt. per ton and a north drive was in 6.9 dwt. ore. Winzing from No. 9 level, on the No. 2 Cross lode was in values averaging 9.5 dwt. per ton. Elsewhere values were from 4.5 to 6 dwt. All are indicative of a grade somewhat higher than the ruling average of the field.

Developments in Lake View and Star, Great Boulder Pty. Gold Mines, and Gold Mines of Kalgoorlie, continue well and there is promise at deeper levels in South Kalgurli, Boulder Perservance and Kalgoorlie Enterprise, based on the general appearance of their neighbours that have reached deeper horizons. Farther afield, Central Norseman Gold Corporation should continue to produce ore of existing grade and maintain its dividend position. With Great Western Consolidated, there is prospect of long range improvement, coming with the development of properties now being drilled south of Bullfinch, and the opening up of deeper horizons in the Bullfinch mine itself. There is little doubt that even a moderate increase in the long-looked-for improved price of gold, would place the Western Australian gold mining industry in a very strong position.

[Since this letter was received, Gold Mines of Kalgoorlie (Aust.) have made a bid for the control of Boulder Perseverance. See *Mining Journal* August 27, page 244. —Ed. *M.J.*]

The Central Roasting Plant for Southern Rhodesia's Mining Industry

The Government-owned roasting plant at Que Que, Southern Rhodesia treats refractory gold-bearing concentrates from numerous mines throughout Southern Rhodesia, from the Union of South Africa and also from territories to the north. Situated in the centre of one of Southern Rhodesia's richest gold-producing areas, it has rendered invaluable service to the Colony's mining industry, and the following article describes the operation and treatment of concentrates which last year totalled 10,796,823 tons.

Last year the roasting plant at Que Que, Southern Rhodesia, handled 10,796,823 tons of concentrates containing 30,161.320 oz. of gold and recovered 26,076.31 oz., equivalent to 86.46 per cent of the total treated, compared with 78.32 per cent in 1952. The plant, which is Government owned, was completed in February, 1938, but has been considerably extended and modified. The concentrates are first roasted to remove sulphur and arsenic, after which the gold is extracted by reconcentration and amalgamation, followed by cyanidation of the residue. The arsenic contained in the furnace gases is recovered in an electrostatic precipitator. From the start of operations in 1938 up to the end of 1950, the plant treated 66,745 tons of concentrates having a total gold content of 184,835 oz. and produced gold amounting to 160,815 f.oz. It also purchased 439 tons of slags and allied products containing 17,029 oz. and sold 4,975 tons of crude arsenic for the production of dips and wood preservation.

WIDE RANGE OF PRODUCTS

This roaster has rendered invaluable service to the mining industry of Southern Rhodesia, for without it most of the gold and other products treated would have had to be shipped overseas at considerable expense. Furthermore, a large proportion of the total arsenic used in the Southern and Central African territories has been produced in the roasting plant. This source of supply proved particularly valuable during the war years, when arsenic became extremely scarce.

When the erection of the plant was originally contemplated it was estimated that some 900 tons of concentrates per month would be available for treatment from mines which were opening up the sulphide zone, and the initial capacity was planned on this assumption. It became early apparent, however, that this figure was not likely to be reached until the sulphide zone had been explored on a very much larger scale. In 1939, the first complete year of operations, the roaster had an output of 8,152 oz. of gold, including 216 oz. recovered from mines in the Bechuanaland Protectorate, and by the end of the year the plant was treating approximately 600 tons per month.

This scale of operations was too small to permit of economical operation at the prices charged. In 1940 output rose to the more satisfactory total of 9,190 oz. and concentrates began to come forward in increasing quantities, due to favourable developments in the sulphide zone, but the year's operations again resulted in a loss. As a result of plant breakdown production fell to 8,000 oz. in 1941, when a further working loss was made.

IMPORTANCE OF THE ROASTER

In view of the importance of the Que Que roaster to the development of the gold mining industry in Southern Rhodesia, the Government preferred subsidization to an increase in treatment charges. The whole position was carefully examined, however, and it was concluded that further expenditure on plant and equipment was necessary to put the undertaking on an economic basis. This involved the installation of two Duplex roasters, together with extensive alterations to existing plant. This programme began to bear fruit in 1942, when the plant produced 12,037 oz. of gold valued at £94,016.

As in the Union of South Africa, the hardships of gold producers became progressively greater as the war went on. Economic conditions led to such an appreciation in mining casts that the small man with a marginal mine found it increasingly difficult to survive. As the number of small workers dwindled there was a steady decline in the gold output, which was accentuated by such factors as shortage of European labour, shortage of African labour in some areas, shortage of certain essential equipment and supplies, and to a limited extent war taxation.

Although these conditions were reflected by a corresponding decline in the supply of concentrates, the roaster was able to play a key part in overcoming the shortage of arsenic which arose during the war. A brief outline of the arsenic situation in Southern Rhodesia will enable the importance of this aspect of the roaster's activities to be viewed in the appropriate perspective.

ARSENIC PRODUCTION

Arsenic was first mined in Southern Rhodesia during 1914, when there was an output of 76 tons. Thereafter interest seems to have lapsed until 1918, when attractive prices led to the first serious attempt to produce arsenic in the Colony. Output then increased gradually till 1923, which it reached a peak of 853 tons valued at £33,606. Production then closed down. By 1926 the only producing mine was the Hydra in the Bulawayo district. In 1939 there was no production.

The arsenic mineral, mispickel, is frequently associated in varying amounts with gold deposits in Southern Rhodesia, but is normally regarded as merely a nuisance. Seldom does it occur to the exclusion of other sulphide minerals and in such a high proportion that the deposit becomes workable for arsenic as a primary product and gold as a by-product. There are two such deposits in the Gwanda gold belt, however, namely the Champion and the Hydra group of properties, while a certain amount of arsenic has also been produced in the Umtali district.

The Champion reef is a highly mineralized banded ironstone, containing lenses of high-grade mispickel up to 6 ft. wide, which is situated near the southern extremity of the Sibiwa-Bar 20 strike of arsenical gold reefs. The Hydra claims are close to the western extremity of the Gwanda gold belt near the Tuli River. Here reef quartz and country rock highly mineralized with mispeckel occur in a series of nearly parallel reefs, apparently of short strike, in hornblende schist, over a stretch of country nearly two miles long. Here again, gold is associated with the mispickel and the near-by gold mines are arsenical.

When arsenic became critically scarce, negotiations were

instituted between the Rhodesian Government and the British Ministry of Supply for its production at Que Que and the re-opening of some of the Colony's arsenic mines. The latter proposals fell through, but a new refining plant was erected by African Explosives and Industries Ltd. at Rodia Siding, near Salisbury, to handle the raw product from the roasting plant. This refinery uses an arsenic sublimation process in which is incorporated the Leggo Patent Furnace. The plant is fed with gold-bearing residues from Que Que. The arsenic is refined up to slightly more than 99 per cent, the gold extracted in the process being returned to Que Que.

In 1943, the Colony's output of arsenic rose to a peak of some 19,000 tons. This level could not be maintained, however, and in the following year it fell to 945 tons, due chiefly to the exhaustion of dump arsenic at the roasting plant. Thenceforward only current production from the precipitator was available and this was limited by the reduced supplies of concentrate coming forward. For several years the Colony's production of arsenic declined very steeply, falling from 688 tons in 1945 to 312 tons in 1948 and 84 tons in 1951. The installation of a new precipitator then led to a substantial improvement in the quality and quantity of the arsenic recovered, an output of 568 tons being recorded for 1952.

RECENT PROGRESS

In 1950 there was a notable increase in the quantity of concentrates delivered to the Que Que roaster, due chiefly to the expansion of production at existing mines. This improvement continued throughout the following year and in 1952 purchases of concentrates and tonnages treated were greater than ever before, owing to the high outputs by a few large mines.

Due to the reconstruction of No. 1 furnace, the plant had only one roasting furnace in operation throughout almost the whole of 1952, resulting in an accumulation of concentrates awaiting treatment. In order to handle an increased tonnage of roasted concentrates when No. 1 furnaces was recommissioned, numerous additions was made to the treatment plant for dealing with the roasted product.

The two furnaces were in operation throughout almost the whole of 1952, but in spite of a considerable increase in the tonnage treated, large stocks still remained in hand. The average gold content of the concentrates treated was the lowest for some years and the pressure of large stocks, together with dust, moisture and impurity problems, gave rise to operational difficulties. Nevertheless the total amount of gold handled at 36,382,990 gross oz. was larger than in any previous year.

REDUCING THE HIGH GRADE STOCKPILE

The most notable feature of last year's operations was a reduction in stocks of concentrates from 3,494 tons on January 1 to 1,252 tons on December 31. This was achieved in spite of a reduction of nearly 455 tons in the quantity treated during the year. At the end of 1953 only low-grade stockpiled concentrates remained on hand, and these were being mixed with fresh concentrates before roasting. About one-half of this stockpile had been moved indoors before the end of 1953. The balance has since been moved and will be treated during the coming year. The whole pile was re-weighed and the gold content re-assessed when it was moved, thus making it possible to determine whether any losses took place during the period of storage, which lasted for nearly four years in the case of the oldest lots.

As the pressure on storage space decreased the necessity for forcing concentrates through the roasters also diminished, and it became possible to concentrate in improving roaster operations. The proportion of total gold recovered by amalgamation showed a marked increase last year, rising to 33.93 per cent of the total gold recovered and banked, compared with 16.51 per cent in 1952 and 22.18 per cent in 1951. A notable decrease in mercury consumption took place after an alteration to the milling circuit. The roaster discharge is now pumped direct to the classifier while the ball-mill discharge is split over two James tables, the table concentrates being retabled over a half-size Wilfley table. The previous practice was to pass the roaster discharge over one table and the ball-mill discharge over another.

The grade of concentrates handled last year was still lower than in 1952, due in the first place to the receipt of an increased proportion of the lower-grade concentrates produced by flotation on several large mines, as against the small tonnages of comparatively high-grade concentrates previously produced by small workers, and secondly, to the final termination of supplies of high-grade concentrations from South Africa.

The number of small workers sending concentrates to the plant has dwindled greatly during the past decade, reflecting the decline in gold mining operations by small producers. Of last year's total of 52 suppliers, five large mines sent in 63.7 per cent of the total number of consignments and 75.6 per cent of the total weight received.

Of the largest producers, Dalny Mines, a subsidiary of Falcon Mines Ltd., started up its own roaster in April of this year. Prior to the arrival of the roasting unit, the company had sent the maximum permitted amount of its unroasted concentrates to the Que Que roaster and had stockpiled the remainder.

REDUCED TREATMENT CHARGES

As part of the Government's efforts to arrest the decline of gold production, a reduced treatment charge of 25s. per ton of concentrates produced by mines in the experimental or development stage was introduced in 1948 and extended the following year. Owing to rising costs, however, it was found necessary to increase this charge to 30s. as from April 1, 1950, when the ordinary charges were put up by 7s. 6d. to 52s. 6d. Owing to further increases in the costs of stores and wages, costs have continued to show a rising tendency, but because of improved efficiency the cost per ton treated actually decreased from £5 3s. 9d. in 1952 to £5 2s. 4d. last year. Both these figures include interest on Government loans.

The plant's terms of payment and charges were amended in November last year. Payment for gold contained was reduced from 85 to 83 per cent and treatment charges were increased from £3 to £3 7s. 6d. per ton. The limit of acceptance free from penalty on concentrates containing deleterious material was fixed at 0.1 per cent in all cases, while the penalty rate on lead or antimony content in excess of the permissible content was increased.

Complaints were received last year regarding the deposition of arsenic in and around Que Que. The Board points out that because of the necessity to reduce the large stockpile of concentrates, it remained essential to use two roasting furnaces, resulting in overloaded conditions in the arsenic precipitator, with consequent loss of efficiency. Steps are being taken to eliminate the nuisance and a firm of consulting engineers has been called in.

Durban Roodepoort Deep Achieves Mine Tunnelling Record

Recently a South African record of 1,230 ft. face advance in a driveway at 8,000 ft. depth was established at Durban Roodepoort Deep Limited. This rate of development is interesting from two points of view; firstly in consideration of the trend revealed at sinking mines of the South African fields where payable ore has been reached as speedily as possible in order to pay for costs of sinking; and secondly because the work end was driven on the bench and heading principle, a method developed on the Durban Roodepoort Deep property. The following article briefly describes the project and stresses the importance played in it by the Atlas LM100 mine loader which has only recently been introduced to the South African gold fields.

The record 1,230 ft. face advance at Durban Roodepoort Deep Ltd. was accomplished in the course of a high speed development project in No. 48 haulage from the 6A sub-circular shaft of the property. The dimensions of the haulage were 11 ft. by 10 ft. and driving was on the bench and heading principle with a 14 ft. terrace providing a platform for drilling the top holes and permitting drilling and loading to be done simultaneously. This method was developed at Durban Roodepoort Deep, the West Rand producer in the Central Mining and Investment Corporation Group.

On an average seven rounds were pulled per 24 hr., with an advance of approximately 7 ft. per round, and in the operation rock drills mounted on air legs were used together with tungsten carbide tipped drill steels. The ground encountered included the customary quartzites, shales and dykes of the Reef mines. For loading and removing the broken rock there were ; one mine loader plus one spare loader, one locomotive and 12 4-ton side discharge hoppers.

The Atlas LM100 mine loader at the 8,000 ft. level of Durban Roodepoort Deep Limited

It is estimated that a total of 11,000 tons of rock was broken, loaded and hauled, and the operation was accomplished in 26 working days (8 hr. shifts, six days per week). An achievement under any circumstances but more so at a depth of 8,150 ft. below surface and with a rock temperature of 104 deg. F.

While planning, organization and the effective co-operation of all concerned are primary elements in an undertaking of this nature, modern mining equipment is naturally also an essential. In this instance one of the items of mining equipment which contributed largely in establishing the record at Durban Roodepoort Deep was the Atlas LM100 mine loader supplied by Messrs. Delfos (Pty.) Limited, the South African company in the Atlas-Copco Group.

DESIGN AND CONSTRUCTION

The design and construction of the Atlas LM100 mine loader, although only recently introduced to these fields, is based on many years experience in this specialized branch of mining equipment. Certain constructional features of the unit are of particular interest. These are the unique bearing arrangement for supporting the upper deck, the powerful front end buffer for supporting the bucket in the digging position, the support pins against which the rocker arms rest giving added leverage, the cushioned crossbar which absorbs the shock at the moment of discharge, the casings and guides for the crossbar springs, and the power assisted slewing and centring mechanism.

The combined support for the bucket, by the heavy front end buffer, and the support pins for the rocker arms, ensures that the bucket is filled and that there is no load on the bucket chain and guide rope while the bucket digs into the rock pile. The cushioned crossbar stops the bucket smoothly and ensures an equal distribution of shock load

WORKING PERFORMANCE

Three important features of the loader were observed under actual working conditions at Durban Roodepoort Deep. They were improved loading efficiency, reduced operator fatigue, and the ability to work effectively on the normal air pressures of the mine compressed air system. The improved loading efficiency was demonstrated by the fact that the 4-ton side discharge hoppers were completely loaded to full capacity without any extra lashing. This was an important factor resulting in a substantial reduction in the loading time for each cycle, which was expected to be about 2½ hr. but actually averaged well below 2 hr.

The power assisted slewing and centring device greatly assisted in reducing the physical fatigue of the operator. With this device the upper deck with the bucket is no longer slewed by manual effort. This proved to be a valuable feature when having to work in conditions of temperature and humidity as those existing 8,000 ft. below surface. On some high speed development projects it has been necessary to install booster compressors because the loader's air motors require 100 lb. p.s.i. working pressure. This was not required at Durban Roodepoort Deep where the Atlas LM100 loader worked efficiently with air at 60-70 lb. p.s.i., as obtained from the normal compressed air supply. This is an interesting factor in the overall performance of the loader.

Operations leading to the rapid development of mines are of particular interest to-day, as the increase of costs in the mining industry—in keeping with all other industries—has made it imperative to achieve speedy access to ore bodies in sinking mines in order to pay for the costs of sinking and general development as soon as possible. Thus, although the Durban Roodepoort Deep face advance was accomplished at depth in an established mine, the methods and machines used are of particular interest in light of the recent expansions which have taken place in the gold mines of the Witwatersrand and Orange Free State.

Transportation of Mining Equipment by Air

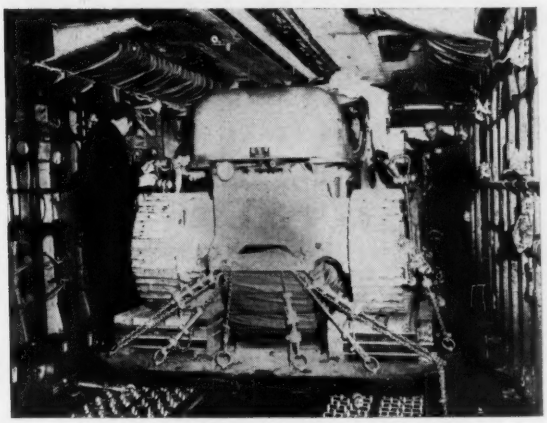
The helicopter has already found a niche in the mining industry, particularly for geological survey work and for the delivery of light equipment to less accessible mining areas. Yet the demands of mining often call for the bulk delivery of heavy machinery, and in this connection the large tonnage freight-carrying aeroplane provides an efficient means of transporting heavy units of mining equipment. The following article describes several recent operations which utilized this medium, and indicates that delivery of the equipment may be completed by conventional landing strip or by parachute drop.

While the uses of the helicopter to the mining industry have been the subject of several articles appearing in previous issues of *The Mining Journal*, it is as well to recall that aircraft of conventional design have proved of great use in opening up certain of the world's mining areas. One such instance was the delivery by air of replacement machinery for Mount Isa Mines, the Queensland lead-

Unloading an air compressor from the Bristol Freighter in the Salmita operation west of Yellowknife

zinc-copper-silver and possibly uranium producer. This equipment was flown from New York to Australia by an aircraft under charter for £10,000 to the company. The equipment was valued at £25,000 and the operating distance was 12,000 miles.

A further indication of the wide use of freight transportation by fixed wing aeroplane to distant or inaccessible mining areas has been reported from Salmita Consolidated Mines at Yellowknife, Canada, where use of Bristol Freighter aircraft for transport of mining equipment was cheaper per ton than ground transportation. This has been proved by operations at the company's tungsten-gold property 150 miles north-east of Yellowknife Town. To meet its entire working programme of 1952, Salmita flew in several hundreds of tons of supplies, equipment and personnel at a cost of $90 per ton by air compared with $160 per ton by tractor train. The Bristol Freighter carries from six to seven tons per trip. The most interesting feature of the operation was that a complete 100 ton mill was flown to the mine from Yellowknife.



The packed tractor before the drop. The load weighs 21,000 lb.

The transportation of heavy equipment and supplies by air freighter to airstrips in either accessible or inaccessible terrain is becoming increasingly accepted by military authorities of the United States and United Kingdom. In the " Operation Test Drop," for example, the U.S. Army delivered by parachute 500 tons of construction equipment, several Allis-Chalmers H.D.5G tracto-shovels being included in this tonnage.

The method of packing a tractor for parachute descent is of considerable interest. The machine is raised on its pallet by felt pads set under the body and by specially

Static lines open the six main 100 ft. diameter parachutes

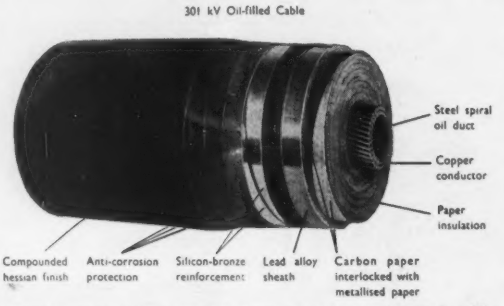
constructed boxes placed under the tracks. These boxes are designed to collapse upon the impact of landing and thus act as a medium of shock reduction, an important point considering that the tractor, in its packaging, weighs 21,000 lb. In the drop an extraction parachute is first released which pulls the tractor out of the hold as it passes behind the aircraft, and as the machine falls static lines open the six main 100 ft. dia. parachutes.

It is possible that the development of this type of aircraft will prove an economical method of delivering plant to distant or inaccessible sites, and that interesting applications exist for delivery by this novel method of heavy machinery units for the mining industry.

Oil Filled Electric Cable for the Kitimat Project, British Columbia

The Kemano-Kitimat project, undertaken in British Columbia by the Aluminum Company of Canada Limited, wholly owned subsidiary of Aluminium Limited, involves interesting developments in cable engineering by a British manufacturer. The power developed by the hydro-electric generators in the subterranean powerhouse at Kemano is to be conveyed 670 yds. through a tunnel to the terminal point of an overhead line, which then carries it to the electrolytic refining plant at Kitimat 50 miles away. The cables used in this tunnel have to be capable of conveying a minimum of 550 amp. at 301 kV., 3 phase, and are believed to be the most highly rated cables in the North American Continent. Two circuits of three single-core cables have been installed in this tunnel, both of the oil filled type, one of which, described in the following article, was designed, manufactured and installed by Pirelli-General Cable Works Ltd., the joints and sealing ends being supplied by the Pirelli Company of Milan.

The oil-filled cables installed in the cable tunnel of the Kemano-Kitimat hydro-electric project of the Aluminium Company of Canada Limited demanded a highly stressed insulation to maintain the cost and dimension of the cable at a reasonable level. As a result of previous experience of oil-filled cables, it was decided that a maximum working stress of 305 volts/mil. (120 kV/cm.) would be feasible provided a dielectric of nearly perfect quality could be ensured; the previous maximum working stresses with oil-filled cables in this country had been 228 volts/mil. (90 kV/cm.).



Construction of the Pirelli-General 301 kV oil-filled cable

PROBLEMS OF CONSTRUCTION

One of the first problems that had to be overcome was to avoid the insulating papers wrinkling and creasing. This defect, which is especially noticeable with increased insulation thicknesses, affects the dielectric strength particularly under impulses and it was essential that it should be eliminated. Considerable research was carried out in this field and the results obtained were verified in practice. Eventually a formula was obtained for estimating the exact tensions at which the papers in all layers should be applied. To-day Pirelli-General is able to manufacture cables with insulation thicknesses of 1 in. and over, which are completely free from any sign of such defects.

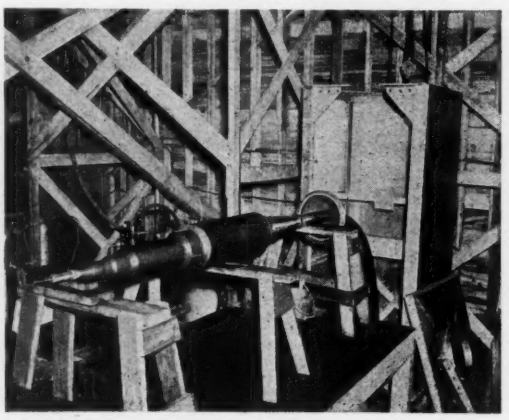
Another factor that had to be investigated was the question of drying and impregnating, the larger mass of paper requiring a much longer drying period than the insulation on smaller cables. To ensure a high degree of dryness prior to lead sheathing, the cable was provided with an outer screen consisting of semi-conducting carbon paper interlocked with metallized paper. This presented a less impermeable barrier to drying than if metal or metallized paper screening tapes had been used.

In addition, the outer end of the cable run between the end of the tunnel and the commencement of the overhead line is subjected to extremely low temperatures in winter. At such temperatures the grade of oil normally used for cable impregnation would become considerably more viscous and handicap the hydraulic design of the installation. Accordingly an oil with a viscosity of about one-third of the normal was used. Pirelli-General was examining this oil when the enquiry was received and found that its electrical performance was equal to that of the ordinary oil. Finally, new drying and impregnating tanks had to be installed to take the 12 ft. dia. drums on which the cable was wound, the cable being supplied in lengths of approximately 230 yd. and the overall dia. being 3.83 in.

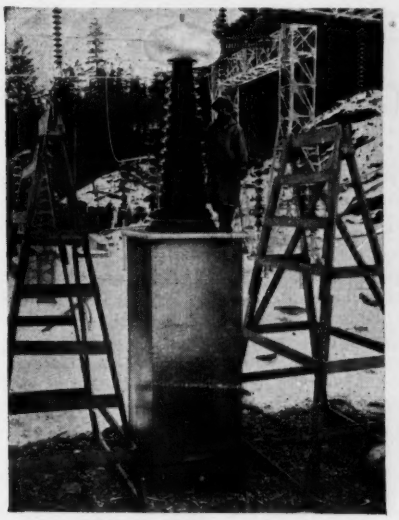
THE TEST CYCLE

In addition to an 85 deg. C. load cycle test at 232 kV to earth, the test requirements specified ten negative and ten positive impulses to 1,050 kV peak, and an A.C. test of 350 kV to earth for 24 hr. followed by 425 kV for 2 hr. These tests had to be carried out on cable which had been subjected to bending four times in each direction round a

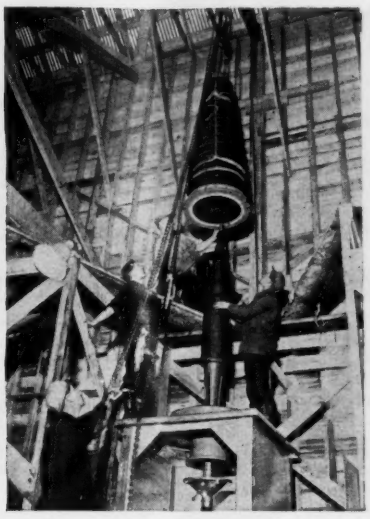
The Kemano cable tunnel. Here one phase of the Pirelli-General 301 kV. oil-filled cable is being passed into one of the transformer vaults through the roof



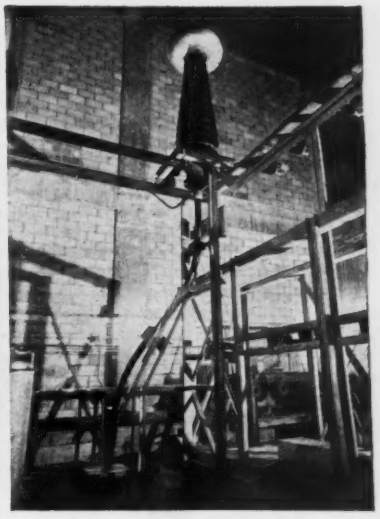
A 301 kV. insulated cable end ready for the application of splints prior to lifting into the vertical position on its permanent structure



One of the three Pirelli-General 301 kV oil-filled cable sealing ends in the outdoor switchyard



Lowering the insulator over a completed insulated cable end situated in the outdoor switchyard



A completed cable sealing end in one of the subterranean transformer vaults at Kemano

drum 130 in. in dia.

The tests when carried out, indicated that both cable and accessories had an ample margin of safety over these requirements, impulse voltages up to 1,250 kV and A.C. voltages up to 500 kV being reached without breakdown. Additional tests at elevated conductor temperatures were also made. On A.C., a joint failure occurred at 425 kV after the conductor temperature had been held at 100-105 deg. C. for 10 hr. Under impulses with the whole assembly externally heated to 84 deg. C. the joint failed at 1,100 kV.

INSTALLATION OF THE CABLE

The cable was installed by pulling it along the tunnel from the outdoor switchyard end. As this necessitated the complete removal of the cable from the drums for the middle and innermost lengths, mobile pressure tanks were used during this operation and were taken along the tunnel continuously connected to the cable. The tunnel itself was blasted out of solid granite and slopes downward from the underground transformer chamber to the outdoor switchyard, the difference in level between the ends being 36 ft. The powerhouse is situated inside a mountain with the switchyard at the terminal point of the overhead line situated on level ground at the toe of the mountain. At its innermost point the tunnel is 2,600 ft. below the surface.

The cables are supported in wooden cleats in horizontal formation at 12 in. spacing between phases. They are clamped at 5 ft. intervals but are supported every 15 in. An initial vertical deflection of $\frac{3}{8}$ in. in the centre of each 5 ft. span has been given to each cable to control the expansion under load conditions.

The oil pressure tanks are of standard internal cell design, two tanks each containing 225 litres of air pre-pressurized to $7\frac{1}{2}$ lb./sq. in. being connected to each cable. The pressure tanks are in the transformer chamber.

The cable was installed by pulling it along the tunnel over aluminium rollers

The hydraulic design has to cater for extreme conditions, the ambient temperature fluctuating from a maximum of 120 deg. F. to a minimum of −10 deg. F. Furthermore the cable has to be able to withstand the sudden application of the full load at an extremely low temperature.

The low viscosity oil used largely obviates these difficulties and the maximum transient pressure rise at any point in the cable cannot exceed 40 lb./sq. in. This is rather less than the maximum static pressure which is 50 lb./sq. in. in the cable and 44 lb./sq. in. in the lower sealing end. Oil leakage indication is provided by a triple unit differential oil pressure indicating switch situated in the transformer chambers and cross connected in the usual way.

STRAIGHT JOINTS AND SEALING ENDS

The joint design follows established oil-filled cable principles. By making the cable in lengths of approximately 230 yd., the number of joints required was limited to two per phase, a total of six in all. The total length and profile of the tunnel are such that no stop joints are needed.

The joints were built up by hand with paper tube rolls and encased in mild steel sleeves having mechanical joints between the cylindrical sleeves and the end bells which are made of phosphor-bronze. The end bells were plumbed to the cable sheaths.

The same type of sealing end is used for both the underground transformer chambers and the external connections to the overhead line. The design is conventional in that no condenser-type stress control is employed. Since the porcelains are not resistance-glazed the design is entirely stable. Its success lies in the calculated stress control devices.

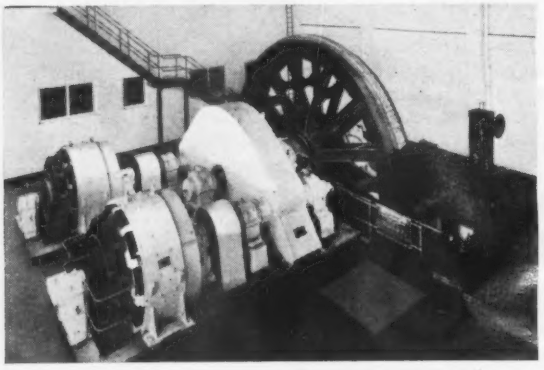
The cable ends were insulated in the horizontal position and placed in specially designed splints. They were then raised through 90 deg. to an upright position, the splints removed and the porcelains lowered on to the ends.

MACHINERY AND EQUIPMENT

A Koepe Winder for the N.C.B.

In previous issues of *The Mining Journal* the techniques of vertical haulage by means of Koepe winders has been described, and it will be recalled that this method of rope haulage was first practised on an appreciably wide scale in the Ruhr coalfields (*Mining Journal*, July 17 and 24, 1953.) The Koepe winding system has since appeared in coalfields of the United Kingdom, and the installation of Koepe winder towers at Rothes Colliery, Fife, emphasized that the planning of such installations demands a recognition of many mining problems from coal flow to the topographical setting of such surface features as railways and the like. The Koepe haulage system should not, of course, be regarded as being applicable only to the coal mining industry, as the advantages arising from the system may also be of benefit in metalliferous mining in certain instances such as those, for example, at West Driefontein whose Koepe winder installation was referred to in our issue of July 9, 1954.

A number of large Koepe winders were ordered by the N.C.B. for its post-war electrification schemes and the first to be ready for service is a 3,720 h.p. installation at No. 2 shaft, Bradford Colliery, Manchester. This equipment was supplied and installed



The equipment in course of installation, before the rope groove was cut in the Koepe wall

by Metropolitan-Vickers Electrical Co. Ltd. as main contractors, the mechanical portions being manufactured by Fraser and Chalmers Engineering Works, and the gears by David Brown & Sons, Ltd. At the present time Metropolitan-Vickers has a number of similar equipments in hand for the N.C.B.

The new winder, a ground type Koepe Ward-Leonard geared, is designed for winding from an ultimate depth of 3,822 ft., which will be reached in three stages, each stage having a life of about 30 years. Two skips, each of 12 tons capacity, and for the first stage a locked-coil rope, will be used. The net load of coal per skip will be 12 tons and 400 tons will be raised per hr. at all stages. The main rope is a locked coil, equal lay rust-resisting length of 2¼ in. dia. at 74.8 lb. weight per fathom, with a guaranteed breaking load of ± 5 per cent of 278 tons and a maximum rope speed of 37.8 ft. per sec. The balance rope is a multi-flattened strand unit of 8½ in. circumference and the Koepe wheel is 24 ft. in dia. with maximum speeds of 30 r.p.m., 35.5 r.p.m. and 41 r.p.m. at the three stages.

The ultimate stages will not come into operation for a number of years, and the size of rope to be used for these greater depths has not yet been decided upon. The winder was designed on the basis of a 2⅞ in. multi-strand rope of approximately 84 lb. to the fathom, but a locked coil alternative may eventually be used.

To assist in rope installation and changing, a 300 h.p. winch is provided, having a single plain cylindrical drum driven by an A.C. slip-ring induction motor. This winch is in the headgear structure and is controlled from an adjacent driver's platform.

The winder motors are supplied from a motor-generator set situated in the power house, which is a separate building housing three turbo-compressor sets, the motor-generator sets for Nos. 1 and 2 winders, and the colliery substation; the whole of this equipment was supplied by Metropolitan-Vickers.

One-man Power Kits

Flexi-Force Hydraulic Power Kits, made by Epco Ltd., have proved their value in the industrial field and particularly in mining. Portable hydraulic power up to 20 tons capacity, quickly adaptable for specific tasks, offers an unlimited scope to enable one man to do many jobs speedily and safely. According to the manufacturers, the equipment is now being increasingly recognized as useful equipment in mines and collieries.

The Flexi-Force consists of a manually-operated hydraulic pump which forces oil through a high-pressure rubber hose to an hydraulic ram. The range of attachments gives innumerable uses to the ram. Being portable and self-contained it saves time and expense. This tool is available in two capacities—the 20-ton heavy duty (44,800 lb. capacity) and the 8-ton industrial outfit (17,920 lb. capacity). With both models pressures can be built up under control and applied where required.

The 20-ton heavy duty kit includes chains, chain-plate for pulling other attachments, and the 8-ton outfit consists of pump, ram and connection.

An Anti-Corrosive Paint Primer

A highly developed primer has withstood tests and trials to a degree which satisfactorily proves it a major step towards overcoming corrosion. It thus is conceivably applicable to uses in the mining industry.

The priming coat is a major factor in the selection of a paint system to protect structural iron and steelwork but, unfortunately, a "soap formation" takes place by the reaction of red lead powder and vegetable oil medium so that primers are rapidly attacked by the solvents in some of the more important finishing coats, and the primer imposes limitations on the choice of finishing coats. To make a primer as resistant as possible to such finishes, it has been the practice to allow long hardening periods before applying the finishes. Alternatively, by the incorporation of red lead into rapid drying medium—such as chlorinated rubber—quick drying primers can be obtained but no soap formation takes place and these media are, therefore, not rust inhibitive. Alternative pigments have been tried, such as iron oxide used with rapid drying media usually containing a small amount of oil. But these pigments are quite inert. They do not react with the oils and are thus unable to provide rust inhibiting primers.

These were the problems considered by the laboratory division of Evode Limited of Stafford. Out of their experiments and developments they have produced Evo-Led, a primer for use under strong solvent based finishing paints—such as chlorinated rubber and bituminous paints. The most stringent tests have shown that Evo-Led primer can be safely overpainted in 24 hours. It contains a high proportion of vegetable oils together with red lead powder, so that there is complete soap formation.

Microscopes for Industry

To celebrate a centenary of microscope manufacture, James Swift and Sons, Ltd., are offering a new range of microscopes. All instruments in the range are based upon a common "Century" stand, comprising foot and limb, stage bracket and coarse and fine body adjustments machined in sympathy with the dovetailed slides of the focussing substage. A range of components and accessories to mount upon the basic stand are offered, and the design thus offers freedom of choice of a microscope outfit whether biological, polarizing, or metallurgical, plus a high degree of convertibility.

Some Post-war Problems of Trading on the London Metal Exchange

The functioning of the London Metal Exchange has been the subject of varied, and often misplaced, criticism ever since it re-opened for dealings in tin in the autumn of 1949. Of late, this criticism has centred on the consumer's alleged inability to receive under the L.M.E.'s standard contracts the precise grade or brand of metal required for his particular purpose. The realities of this problem, as of others confronting the Exchange under post-war conditions, have been succinctly presented by A. Strauss and Co. Ltd. one of the leading firms of metal brokers, in the August issue of their monthly bulletin. Extended extracts appear below.

Since tin, lead, zinc and copper were released from Government control and trading was resumed on the London Metal Exchange criticism has occasionally been heard about the functioning of the market. Some have held that the price fluctuations have been excessive. Others, usually consumers, have complained that, against purchases on the Exchange, delivery of unwanted grades or brands of metal has been tendered. Many have pointed out that hedging sales on the Exchange have been penalized by the backwardness which has been almost continually in existence in all the four metals. Others again have alleged that the prices fixed on the Exchange have at times been unrealistic because not supported by the turnovers seen in pre-war days.

THE PROBLEM OF "STANDARD" METAL

The complaint made sometimes by consumers that if they purchase supplies on Metal Exchange contracts they get delivered to them a grade or brand which they do not use in their works, has a good deal of justification. But here it must be remembered that on the Metal Exchange, unlike the Stock Exchange where a specified security is purchased at its own price, trading takes place in standard metals, namely, Standard tin and copper (against which certain grades are deliverable at a discount in seller's option), refined pig lead of 99.97 per cent minimum purity and good ordinary brand of zinc of not less than 98 per cent purity.

Throughout its long history, dating back to 1881, the authorities of the Exchange recognized that in order to be a free market the Exchange must deal in "Standard" qualities of metal, enabling the seller to tender any metal of a registered specification. With the multitude of brands and qualities of lead, zinc and copper it would be well-nigh impossible for the market to function if the seller were under an obligation to supply the particular make of metal which a consumer requires for his particular purpose. In the case of tin the brands and qualities in current demand in the chief consuming centres of the world can almost be counted on the fingers of one hand, and the deliveries on the London Metal Exchange are therefore confined to those brands for which no premium can be obtained at the time and which may not be up to the highest purity required by certain consumers.

THE L.M.E. PRIMARILY A HEDGING MARKET

This brings us to the main purpose of the Exchange, to provide a "hedging" market. It is clear from what was said before, that a consumer does not normally buy his raw materials on the Metal Exchange. This can be much better done by purchasing from a merchant the exact grade and delivery of metal required. The hedging facilities are used by those who, as producers, merchants or consumers, are exposed to the risk of price fluctuations brought about by factors over which they have no control.

A producer may wish to secure the present price for the metal contained in the ore he has mined or shipped. He can do so by selling metal forward on the Metal Exchange. A manufacturer of metal products, who has to carry substantial stocks of raw materials, metal in the process of fabrication and finished articles, can, if he fears a drop in metal prices, sell forward on the Metal Exchange. If his fears come true and he has to accept a lower price for his goods, he will make a corresponding profit when buying in against his forward sale on the Exchange

Conversely, a user of metals or metal goods who can only price his purchases with the producer after delivery has been taken, can, if he anticipates a rise in price, purchase forward on the Metal Exchange and he will be compensated for the loss he must suffer when deliveries from his supplier are priced by the profit his forward purchase on the Exchange will show at maturity.

Examples can be multiplied for this type of price-risk insurance. The Metal Exchange provides an insurance market where such price risks can be covered for periods of up to three months at only a nominal premium in the form of a commission. It is in this connection that the disadvantage of the "backwardation" has been stressed. This is the discount for forward delivery as compared with the price for prompt delivery which has been a feature of the market since its re-opening in recent years. There is a time-honoured saying that "the bigger the back the bigger the fall", meaning that it denotes lack of confidence in the existing price level, and indicating a wish on the part of the seller to sell forward metal at a discount. To-day this is only partly true. The backwardation to-day is much rather a sign of shortage of supplies for nearby delivery which, in turn, command a premium. Indeed, the size of the backwardation, or better, the premium for spot metal, has frequently been in direct relation to the stock in U.K. warehouses. Especially when stocks have been low, every weekly drop has brought about a widening of the backwardation, whereas an increase has been followed by a reduction of the "back".

A contributory cause for the existence of the backwardation, has been the fact that consumers, who during the long years of Government control were relieved of carrying their own stocks of metal, are only gradually reverting to the pre-war practice of buying their supplies forward. Even to-day many are only purchasing "from hand to mouth" and by seeking immediate delivery they compete for available supplies.

HOW FREE IS THE MARKET?

Finally, the view has been expressed that Metal Exchange quotations have sometimes been unrealistic having regard to the small turnovers compared with pre-war figures. The reasons for this contraction are manifold and cannot be examined within the space of these notes, but it can be claimed with every emphasis that the London Metal Exchange provides to-day as free and widespread a market as is possible with the many obstacles still hampering the flow of metal and money, and restrictions still operating in some countries whose citizens are not permitted to undertake hedging operations in London. Let us add that the Exchange Control here has allowed right from the re-opening of the Market any differences due to parties abroad to be remitted without hindrance or delay.

It can be expected that as the abnormal conditions attending the resumption of dealings are left behind, the use of the Exchange, particularly as a price insurance market, will become more widespread. This will not only result in larger turnovers but will lead to more competitive quotations. Already now the spread between the closing buyers' and sellers' prices is frequently narrowed to 10s. in the case of tin and to 2s. 6d. or 5s. in the case of copper, lead and zinc. This by itself testifies to the efficacy of the Exchange.

There can be no doubt that, ultimately, the importance of the London Metal Exchange will rise or fall with the esteem in which it is held by its many users in all parts of the world. The basis of this confidence rests as always upon the skill and efficiency of its dealing members.

METALS, MINERALS AND ALLOYS

COPPER.—The copper industry on the other side of the Atlantic has been racked by strikes. In Chile the El Teniente miners who struck on August 18 are still out. On August 31 they were joined by the men of Anaconda's Potrerrillos mine and it is also reported that Anaconda's Chuquicamata (where work was stopped in the early summer) may also strike in sympathy for at least 24 hours and possibly longer. In that event the Chilean copper mining industry would be virtually at a standstill. Latest reports announce an attempt to call a general strike of all copper workers by September 6. El Teniente miners are seeking a 75 per cent wage increase which, it is claimed by Kennecott, would up the cost of production by six per cent per lb. So far the miners, among whom Communist influence is strong, have refused to modify their demands. The Chilean Government's position is desperate. The Treasury is virtually bare and the civil servants, armed forces and police have all been given wage increases for the second half of the year. The Treasury must keep copper moving, but if the wage demands were granted the Treasury would be the loser just the same because its copper income depends on the profitability of the copper workings. There has been an economic, social and political crisis of greater danger, in addition to the immediate threat to the stability of copper prices.

In the United States the situation is somewhat confused. With the help of a Federal mediator a general settlement was reached between Kennecott Copper and the International Union of Mine, Mill and Smelter Workers covering the four properties in Utah, Nevada, Arizona and New Mexico subject to local ratification. Two locals in Utah, however, at first rejected the agreement and ratification was therefore delayed. Acceptance was secured on September 1, 16 days after the strike broke out. It is reported that the men have received a straight increase of 5 c. an hour and fringe benefits of somewhat more than 4 c. against a total of 25 c. originally demanded.

It is now expected that negotiations will begin again between Anaconda and its subsidiaries and the union and that the current negotiations with Philip Dodge will soon be completed.

There has been much speculation on the future of I.U.M.M.S.W. now that the Act for the outlawing of Communism has been signed. There is no doubt that the union is tainted (it was expelled from the CIO—scarcely a right-wing organization—for permitting communist infiltration). On the other hand, President Eisenhower did not wholly approve of the Act which is almost certain to be challenged as unconstitutional; and he would be unlikely to let it be used, while the election campaign is on, as a weapon is a wage negotiation. But—providing the Act is constitutional—the union's days seem to be numbered, and the American copper industry will no doubt be glad of it.

The effect of these disturbances at Kennecott's mines in Chile and America and at Anaconda's in America was, at their worst, to cut copper production at a rate of 60,000 tons a month. The " worst " only lasted, however, from August 23 to September 1. Spot supplies in America became tight and the price of scrap moved up as consumers tried to cover their future operations. But there was no indication that New York's price level would rise above 30 c. per lb. and now that the American strike wave is over the outlook is more cheerful. True the news from Chile is bleak; Chile has sold all production to the end of November, some undoubtedly to speculative interests; but in the next week or so the position there is more critical for the Government than for the copper industry. All that can be said is that supplies will stay tight and the fear of a surplus has been pushed back to the beginning of 1955. As always much depends on the level of American business, but the best guessers now agree that business will stay much the same, not getting any worse, not getting much better for the rest of this year.

LEAD.—Lead has had no difficulty in holding its price of 14.25 c. New York to which it advanced last week in spite of the London tendency to react. American sellers are reported as speculating on whether the full ½ c. might not be reached soon. Their belief is based on the view that the advance came sooner after the President's stockpiling announcement than was generally expected. Certainly lead stocks are not unmanageable, but the rise in consumer buying that was to effect the second jump has not yet arrived. Battery makers will shortly be making their seasonal heavy purchasing; but their buying is a little later than usual this year and the automobile industry's immediate future is speculative. Perhaps more hope is being placed on an optimistic interpretation of the President's stockpiling directive. For the last three months G.S.A. has been buying about 8,000 tons a month; if it were to buy 200,000 tons by June 30, 1955, the rate would have to be pushed up to 19,000 tons. However, the goal is a permissive not a compulsory one. Meanwhile, the G.S.A. has sent out telegrams asking for offers of September metal.

TIN.—New York's tin market has been quiet and soft all week and lacking in any characteristic. On Monday, 23, there was an advance from 92.62 to 93.37 c. per lb. for grade A metal and on Tuesday, reflecting the strength of the other metals rather than any intrinsic improvement, it moved up to 93.75. Thereafter, the market greatly sagged and only showed a slight upturn at the beginning of the month. Trading at all prices was moderate.

The preliminary meeting of the International Tin Council has been arranged for September 20 in London. It is still uncertain whether all the signatories will have ratified by that date but as Mr. France appears to have got his way in the reduction of the ceiling price there is no reason to expect any defaulters.

Malayan stocks of tin metal and tin in concentration at the end of July totalled 6,703 l.tons compared with 7,036 at the end of June.

ZINC.—American zinc has failed so far to climb above the 11 c. E. St. Louis level. However, there are likely to be substantial offers of September metal to the latest G.S.A. invitation. As in the case of lead, if the permissive stockpiling goal were to be reached by June 30 next, the buying rate would need to be raised appreciably—from the present 15,000 tons to a possible 28,000 tons a month. In fact, something like this rate will be needed for the time being to shift the producers' stocks. Trade demand is said to be satisfactory but it cannot be expected to raise the price. Meanwhile, the strike continues at Anaconda's electrolytic zinc refineries and that, too, will help to cut stocks to about where normal supply and demand considerations will again operate.

ALUMINIUM.—Anticipating, perhaps, the future expansion of the aluminium industry (see " Notes and Comments "), the Kaiser Aluminium and Chemical Corporation is planning to erect a multi-million dollar aluminium sheet and foil rolling mill near Ravenswood, West Virginia, which will incorporate all operations in an integrated " ore to product " system. Construction is to start next year and the first stage of the programme, expected to be in production in mid 1956, will have a rated annual capacity of 72,000,000 lb. of sheet and foil.

The Spanish company, The Empresa Nacional, is planning to build a new aluminium factory in San Juan de Nieva with a capacity of 10,000 tons of virgin aluminium annually. Last year the company produced 3,000 tons of aluminium and production is expected to reach 7,000 tons this year following the starting up of operations of the new electrolysis installations at Valladodid. The company also plans to build an alumina factory with a capacity of between 50,000-60,000 tons annually.

ASBESTOS.—The Philadelphia organ, *Asbestos*, in its latest release reports that all grades are in ample supply and at the present rate of industrial activity, asbestos production is capable of handling a substantial increase. To date output and deliveries are from 8 to 10 per cent below the corresponding period of last year.

CHROME.—The Turkish delegation, recently sent to the United States to negotiate sales of Turkish chromium, has now returned empty handed to Turkey. It is understood that the mission was unsuccessful because the Turkish Chromium Committee refused to accept the prices offered by the United States.

This has been a bitter blow to Turkey, as according to recent

reports, about 43 of the 50 larger chromium mines have ceased operations and the remaining seven have cut their production back sharply. The trouble has been for some time that Turkey has priced herself out of the export market although it is hoped that the foundation of the Izmir Chromium Committee, which has declared itself independent of the Turkish Chromium Committee, will bring about a revision of the high export prices.

DIAMONDS.—The U.S. Senate has sent to the House a Bill that would allow the government to exchange gem diamonds now held in the strategic stockpile for industrial diamonds of the same value.

QUICKSILVER.—Demand, heightened by consumers who have exhausted their inventories and are again moving back into the market, has led to the price of quicksilver being raised by a further $5 to a record high of $295 New York for a 76 lb. flask. Trade sources have reported that sales have been made at the new level and that supplies of the metal are tight.

Iron and Steel

The arrival in the Clyde of the first cargo of iron ore from the new mine field in Labrador is a significant event. The spectacular expansion of British iron and steel production in the post-war years has called for a steady increase in the national imports of foreign ore, and although the bulk of the mineral wealth of the Umgava peninsular will be taken up by American and Canadian steel interests, it is understood that the British Iron and Steel Corporation (Ore) Ltd. has placed contracts for 500,000 tons from this source. It affords a further assurance that there will be no lack of iron ore for the new blast furnaces in this country which are now approaching completion.

The early operation of additional blast furnace capacity in this country has become an urgent necessity. The holidays are over. The labour force in the iron and steel works is back to full strength and trade is booming. There is an eager market for all material which the markets can supply. There seems to be no limit to home industrial requirements and delivery dates are lengthening. The position is further fortified by an expanding export demand. There has been a marked increase in the foreign sales of steel bars, tubes, heavy joists and sections. Shipments to Australia, New Zealand and Canada are particularly impressive and Argentina has also been a big buyer of steel sheets.

More pig iron, more scrap, and more ingots are needed to engage the full capacity of the rolling mills, and if these can be provided, still higher output records will be reached before the end of the year. Apart from the heavy requirements of the melting shops, foundrymen are specifying for bigger turnovers of pig iron. Owing to relining a furnace in Derbyshire is out of action and supplies of No. 3 foundry iron are limited. The shortage of low and medium phosphorous iron and also haematite is still more pronounced, whilst scrap supplies from the Continent are drying up. Fortunately British suppliers are forwarding a steady flow of scrap to the steel plants and the recession in U.S.A. has brought considerable tonnages of American scrap on to the market.

The London Metal Market

(From Our Metal Exchange Correspondent)

Business this week in the London Metal Exchange has been rather quiet with turnovers generally somewhat restricted.

There has been no special feature in tin, prices remaining comparatively steady. World consumption appears to be continuing at a very satisfactory rate compared with that earlier this year, and, bearing in mind the quantities of tin which are being taken off the market by the American Government, there seems to be no cause for anxiety that supplies will not be well taken care of during the rest of the year. Demand by American consumers is rather slack just now as is usual at this time, and will probably continue so until after Labour Day next week. On Thursday morning the Eastern price was equivalent to £738⅜ per ton c.i.f. Europe.

Copper on the London market has a very firm undertone, and it is reported that the strike at Kennecott has been settled. However, a considerable tonnage of production has been lost, and at the same time it is worth noting that Chile reports having sold the whole of her output for the current year amounting to an estimated figure of 300,000 tons. The target for the following year is reported to be 180,000 tons in the first half, and 400,000 tons for the whole year. Consumer demand on the Continent remains good, and with the settlement of the strike of metalworkers in Bavaria there is no reason to anticipate any falling off but rather the reverse.

The outlook for lead and zinc seems quite good under the influence of President Eisenhower's increased programme of buying for the stockpile. Following the rise in the London market last week the American lead price was raised to 14½ c., but up to the present the firm London price for zinc has not been followed by a rise in the U.S. zinc quotation which remains at 11 c. per lb.

Closing prices and turnovers are given in the following table:—

	August 26		September 2	
	Buyers	*Sellers*	*Buyers*	*Sellers*
Tin				
Cash	£732	£733	£732½	£733
Three months	£731	£732	£731½	£732½
Settlement	£733		£733	
Week's turnover	400 tons		555 tons	
Lead				
Current month	£99½	£99½	£98½	£99
Three months	£97½	£97½	£97½	£97½
Week's turnover	3,575 tons		2,950 tons	
Zinc				
Current month	£77½	£77½	£79	£79½
Three months	£77½	£77½	£78½	£79
Week's turnover	3,725 tons		4,375 tons	
Copper				
Cash	£240½	£240	£246	£246½
Three months	£237½	£237½	£238½	£238½
Settlement	£240½		£246½	
Week's turnover	5,375 tons		4,975 tons	

OTHER LONDON PRICES — SEPTEMBER 2

ANTIMONY

English (99%) delivered, 10 cwt. and over .. .. £210 per ton
Crude (70%) .. .. .. £200 per ton
Ore (60% basis) .. .. .. 22s./24s. nom. per unit, c.i.f.

NICKEL

99.5% (home trade) .. .. £483 per ton

OTHER METALS

Aluminium, 99.5%, £156 per ton
Bismuth (min. 2 cwt. lots) 16s. lb.
Cadmium (Empire), 12s. lb.
Chromium, 6s. 5d./7s. lb.
Cobalt, 21s. lb.
Gold, 249s. 10d. f.oz.
Iridium, £45 oz. nom.
Magnesium, 2s. 4d. lb.
Manganese Metal (96%-98%) £225/£262
Osmiridium, £40 oz. nom.
Osmium, £50 oz. nom.
Palladium, £7 oz.
Platinum, £30/£31
Rhodium, £42 oz.
Ruthenium, £22 10s. oz.
Quicksilver, £100 ex-warehouse
Selenium, 35s. 9d. nom. per lb.
Silver 73½d. f.oz. spot and 73½d. f'd.
Tellurium, 15s./16s. lb.

ORES, ALLOYS, ETC.

Bismuth .. .. 20% 3s. 3d. lb. c.i.f.
50% 7s. 3d. lb. c.i.f.
Chrome Ore—
Rhodesian Metallurgical (lumpy) £13 12s. per ton c.i.f.
" " (semi-friable) £12 18s. per ton c.i.f.
" Refractory £12 14s. per ton c.i.f.
Magnesite, ground calcined .. £26-£27 d/d
Magnesite, Raw .. .. .. £10 - £11 d/d
Molybdenite (85% basis) .. 102s. 4d.-103s. per unit c.i.f.
Wolfram and Scheelite (65%) .. 177s. 6d. per unit c.i.f.
" " " .. U.K. Gov't Stock d/d 187s. 6d. per unit inc. charges
Tungsten Metal Powder .. .. 16s. 4d. nom. per lb. (home)
(98% Min. W.)
Ferro-tungsten .. .. .. 13s. 4d. nom. per lb. (home)
Carbide, 4-cwt. lots .. .. £37 6s. 3d. d/d per ton
Ferro-manganese, home .. .. £54 15s. 0d. per ton
Manganese Ore Indian c.i.f. Europe (46%-48%) .. .. .. 68d./70d. per unit nom.
Brass Wire .. .. .. 2s. 6⅝d. per lb. basis
Brass Tubes, solid drawn .. 1s. 11½d. per lb. basis

THE MINING MARKETS

(By Our Stock Exchange Correspondent)

Gilt-edged remained relatively steady in the face of unpromising international developments although leading industrials were mostly lower. A further improvement occurred in the overall revenue returns and talk of renewed steps towards ultimate convertibility had little effect one way or another.

Kaffirs again stole most of the thunder. The big gains by the Nationalist Party in South Africa at the Provincial elections failed to discourage United Kingdom interest and although a check occurred in the general rise on Tuesday, the market again went ahead strongly on Wednesday. Gold reached 250s. an oz. on the London market due, primarily, to seasonal weakness in sterling and good demand for the metal in Paris. For those who are interested in chart movements, it is understood that some circles using this medium are suggesting that gold shares have recently entered a major bull market. In any event, it is apparent that the South African Government considers that the Union is in for a prosperous period of hardening currency, and has recently forecast a complete removal of import restrictions by 1956 for this reason.

Good gains were recorded by all leading finance houses with attention particularly focussed upon the Anglo American group and houses with interest on the Far West Rand.

Among individual Rand mines, the tendency was similar, if more restrained. Here again, interest mainly centred on Far West Rand issues, but good gains occurred elsewhere, Doornfontein, Val Reefs and New Pioneers were outstanding.

There was a big volume of business again in Orange Free State shares with popular favourites well to the fore. News that Freddies Consolidated hope to pipe uranium slimes to the Welkom plant by the end of the year encouraged further speculation in the shares, and the strike at Loraine No. 1 shaft failed to halt the advance by this issue. Orange Free State Investment Trust shares were again the star turn, but other leaders also recorded big gains. Exceptionally, President Brand was apparently feeling the effects of the recent large rise and showed only a modest gain.

In the West African and West Australian groups, prices reflected increased interest in gold shares but there was little activity. Mount Morgan, with its United States interest, had another modest advance. There was some buying of North Kalgurli and the price rose 9d. This was due to speculative interest in the future of the property, which is between the main Gold Mines of Kalgoorlie area and the two mines now acquired by the group. It should be emphasized that no official suggestion of a further consolidation move has been made.

In the miscellaneous gold section, St. John d'El Rey fell on renewed anxiety over the financial position of Brazil, but Goldfields Rhodesian Development jumped, due to recognition of its substantial investment position in South African gold shares which had been drawn to public attention by favourable comment in the daily press.

Diamonds recorded good gains due to increased market interest in South African shares and particularly on account of the heavy holding of Orange Free State stocks by De Beers.

Coppers were firm. The strikes in Chile and consequent reduction in production may mean some stringency in metal supplies later in the year with the possibility of a rise in price. Selection Trust were especially good due to the company's additional interest in South African gold shares.

Eastern tin issues were neglected and prices tended to drift lower in the absence of interest.

Nigerians were better due to new assessment of the columbite position and in front of coming dividend announcements, Amalgamated Tin were outstanding. The reduction in dividend by Beralt surprised the bulls and the price of the shares fell sharply.

Elsewhere, apart from the firm tone in Barriers and further speculation in Consolidated Murchison, there was little of interest to report.

FINANCE	Price Sep. 1	+ or — on week
African & European	3 7/16	+ 3/8
Anglo American Corpn.	8 1/16	+ 11/16
Anglo-French	23/9	+ 1/3
Anglo Transvaal Consol.	27/6	+ 1/10½
Central Mining (£1 shrs.)	42/-	+ 2/3
Consolidated Goldfields	54/-	+ 1/-
Consol. Mines Selection	42/6	+ 5/-
East Rand Consols	3/10½	+ 6d
General Mining	4 3/8	+ 3/8
H.E. Prop. 5/- Shares	12/3	+ 1/7½
Henderson's Transvaal	8/6	+ 1/3
Johnnies	48/9	+ 9d
Rand Mines	4 1/16	+ 1/8
Rand Selection	47/6	+ 3/1½
Strathmore Consol.	44/4½	+ 1/10½
Union Corp. (2/6 units)	38/3	+ 4/-
Vereeniging Estates	5 1/8	+ 1/4
Writs	40/-	+ 1/10½
West Wits	44/6	+ 1/3
RAND GOLD		
Blyvoors	35/6	.....
Brakpan	8/6	+ 6d
City Deep	16/3	+ 3d
Consol. Main Reef	20/7½	— 7½d
Crown	43/9	+ 1/3
Daggas	73/1½	— 7½d
Doornfontein	29/-	+ 2/9
Durban Deep	33/9	+ 1/3
E. Daggas	12/6	+ 1/9
E. Geduld (4/- units)	29/6	+ 1/-
E. Rand Props	2 5/8	.....
Geduld	4	+ 1/4
Govt. Areas	13/9	+ 6d
Grootvlei	19/6	— 3d
Libanon	11/3	+ 3d
Luipaards Vlei	22/9	+ 6d
Marievale	19/3	+ 3d
Modderfontein East	16/3	+ 1/3
New Kleinfontein	12/9	+ 6d
New Pioneer	17/-	+ 2/6
Randfontein	69/-	— 9d
Robinson Deep	19/3	+ 1/-
Rose Deep	14/6	+ 1½d
Simmer & Jack	4/6	+ 3d
S.A. Lands	23/1½	+ 1/3
Springs	4/1½	+ 4½d
Stilfontein	29/9	+ 1½d
Sub Nigel	41/3	+ 1/3
Van Dyk	5/6	+ 1/7½
Venterspost	12/4½	+ 7½d
Vlakfontein	14/3	— 6d
Vogelstruisbult	37/-	.....
West Driefontein	6½	+ 3/8
W. Rand Consolidated	53/9	.....
Western Reefs	51/10½	+ 7½d

O.F.S.	Price Sep. 1	+ or — on week
Freddies	8/-	+ 1/3
Freddies Consolidated	21/6	+ 1/6
F. S. Geduld	6	+ 1/4
Geoffries	17/3	+ 1/9
Harmony	41/3	+ 2/3
Loraine	15/3	+ 1/7½
Lydenburg Estates	32/6	+ 11/-
Merriespruit	13/-	.....
Middle Wits	16/6	+ 1/-
Ofsits	85/7½	+ 10/4½
President Brand	77/6	+ 1/6
President Steyn	42/3	+ 4/-
St. Helena	33/-	+ 2/-
Virginia Ord.	16/9	+ 4½d
Welkom	28/3	+ 5/-
Western Holdings	5 7/16	+ 11/32
WEST AFRICAN GOLD		
Amalgamated Banket	1/6	.....
Ariston	6/6	+ 4½d
Ashanti	19/11½	— 7½d
Bibiani	4/7½	.....
Bremang	1/9	.....
G.C. Main Reef	3/4½	+ 1½d
Konongo	2/4½	+ 1½d
Lyndhurst Deep	10½d	.....
Marlu	1/4½	+ 3d
Taquah & Abosso	2/3	.....
W. Selection & Dev.	6/7½	+ 6d
AUSTRALIAN GOLD		
Boulder Perseverance	8/9	.....
Gold Mines of Kalgoorlie	15/6	— 4½d
Great Boulder Prop.	9/6	.....
Lake View and Star	15/6	.....
Mount Morgan	19/-XD	+ 6d
North Kalgurli	8/6	+ 9d
Sons of Gwalia	6/-	+ 3d
Western Mining	13/3	— 6d
MISCELLANEOUS GOLD		
Cam and Motor	9/3	+ 1½d
Champion Reef	4/6	— 1½d
Falcon Mines	9/3	+ 1/3
Globe & Phoenix	24/-	.....
G.F. Rhodesian	8/3	+ 2/-
London & Rhodesian	4/10½	+ 6d
Motapa	2/-	.....
Mysore	5/4½	— 1½d
Nundydroog	6/6	.....
Ooregum	4/3	+ 3d

MISCELLANEOUS GOLD (contd.)	Price Sep. 1	+ or — on week
St. John d'el Rey	15/7½	— 10½d
Zams	37/9	+ 3d
DIAMONDS & PLATINUM		
Anglo American Inv.	7½	+ 11/16
Casts	27/9	+ 1/9
Cons. Diam. of S.W.A.	6½	+ 7/16
De Beers Defd. Bearer	6 7/16	+ 11/32
De Beers Pfd. Bearer	18¼	+ 1/8
Pots Platinum	9/3XD	— 1½d
Watervaal	15/9XD	+ 1/-
COPPER		
Chartered	81/9	+ 2/6
Esperanza	5/6	+ 3d
Indian Copper	5/6	+ 3d
Messina	4 13/16	+ 1/16
Nchanga	9 1/2	+ 3/8
Rhod. Anglo-American	74/9	+ 3/9
Rhod. Katanga	9/7½	+ 3d
Rhodesian Selection	19/9	+ 1/7½
Rhokana	26	+ 3/8
Rio Tinto	37	+ 1/2
Roan Antelope	19/6	+ 1/6
Selection Trust	50/-	+ 5/-
Tanks	5 1/16	+ 3/32
Tharsis Sulphur Br.	3 9/16	+ 3/32
TIN (Eastern)		
Ayer Hitam	25/9	— 3d
Gopeng	7/9	— 3d
Hongkong	7/7½	.....
Ipoh	16/-	— 6d
Kamunting	7/6	— 4½d
Kepong Dredging	3/6	— 1½d
Kinta Tin Mines	10/-	.....
Malayan Dredging	27/-	.....
Pahang	10/4½	— 9d
Pengkalen	8/6	.....
Petaling	7/6	— 1½d
Rambutan	16/6	.....
Siamese Tin	6/10½	— 1½d
Southern Kinta	17/10½	+ 6d
S. Malayan	24/6	+ 6d
S. Tronoh	9/7½	.....
Sungei Kinta	10/9	+ 4½d
Tekka Taiping	5/-	— 3d
Tronoh	24/6	— 6d
TIN (Nigerian and Miscellaneous)		
Amalgamated Tin	16/-	+ 1/1½
Beralt Tin	23/3	— 2/-
Bisichi	6/6	+ 3d
British Tin Inv.	15/6XD	+ 4½d
Ex-Lands Nigeria	3/3	+ 1½d

TIN (Nigerian and Miscellaneous) contd.	Price Sep. 1	+ or — on week
Geevor Tin	12/9	.....
Gold & Base Metal	3/3	+ 4½d
Jantar Nigeria	8/10½	+ 1½d
Jos Tin Area	13/6	— 1½d
Kaduna Prospectors	2/3	.....
Kaduna Syndicate	2/6	.....
London Tin	6/1½	— 1½d
United Tin	3/3	+ 1½d
SILVER, LEAD, ZINC		
Broken Hill South	52/6	.....
Burma Mines	2/3	.....
Consol. Zinc	37/6	+ 2/-
Lake George	7/-	+ 6d
Mount Isa	42/9	— 1/-
New Broken Hill	28/-	+ 6d
North Broken Hill	66/9	+ 6d
Rhodesian Broken Hill	11/3	+ 4½d
San Francisco Mines	18/9	.....
Uruwira	4/-	+ 3d
MISCELLANEOUS		
BASE METALS & COAL		
Amal. Collieries of S.A.	46/-	.....
Associated Manganese	45/9	— 1/-
Cape Asbestos	25/9	+ 1/9
C.P. Manganese	41/3	— 2/3
Consol. Murchison	60/-	+ 1/10½
Mashaba	3d	.....
Natal Navigation	3	— 1/16
Rhod. Monteleo	1/3	.....
Turner & Newall	88/9	+ 2/3
Wankie	14/4½	— 3d
Witbank Colliery	4½XD	.....
CANADIAN MINES		
Dome	$29½	+ 1
Hollinger	$32¾	— 3/4
Hudson Bay Mining	$85	— 2½
International Nickel	$82¼	+ 1/2
Mining Corpn. of Canada	£5 1/16	+ 1/16
Noranda	$137	.....
Quemont	£7½	— 1/8
Yukon	3/7½	.....
OIL		
Anglo-Iranian	15 7/16	+ 1/8
Apex	26/3	— 7½d
Attock	47/6	— 9d
Burmah	93/1½	+ 7½d
Canadian Eagle	32/-	— 3d
Mexican Eagle	19/3	+ 6d
Shell (bearer)	5 5/8	+ 1/16
Trinidad Leasehold	25/-	+ 1/3
T.P.D.	23/9	— 9d
Ultramar	27/9	+ 6d

COMPANY NEWS AND VIEWS

Western Mining Corporation's Drop in Revenue

After the exceptional progress achieved by the Western Mining Corporation during the year to March 31, 1953, when revenue was more than doubled that attained in the preceding year, the results shown in the group accounts for the year to March 31, 1954, must appear somewhat disappointing.

Nevertheless to put the picture into its proper perspective, it must be stressed that last year's revenue was still almost double of that of 1951, and getting on towards five times that of 1949. This outstanding advance, achieved in so short a period, was largely due to the success of Central Norseman Gold Mine, the principal revenue earner of the group and, to a much lesser extent, to New Coolgardie Gold Mines. Thus the reduction in earnings of these two companies—as shown in the table below—in respect of their last accounting period has had its inevitable repercussions on W.M.C.'s profits.

Year to Mar. 31	*Total Revenue**	*Taxation*	*Net Profit*	*Dividends*	*To Reserve*	*Carry Forward*
	£	£	£	£	£	£
1954	630,664	968	563,474	139,718	313,602	1,420,539
1953	880,742	6,608	822,755	139,718	NIL	1,511,485

* The total revenue figures are compounded of gold mining profits of £538,380 (1953—£725,590) ; other revenue of £92,284 (1953—£55,152) ; and minority interests of £720,242 (1953—£596,947).

In view of this decline in group profits it may appear somewhat surprising that dividend income rose to £244,842 compared with the previous year's figure of £192,952. Principal contributors towards this result were, of course, the increased dividends paid by Central Norseman and G.M.K. (Aust.). Of particular note, with the virtual disappearance of New Coolgardie's profits was its maiden distribution of 6d. per share. Dividends paid by the Western Mining Corporation, however, remained at the previous year's figure of 1s. per stock unit on its issued ordinary capital of £698,588 in 5s. stock units.

The Corporation's interests are widespread and cover operations in both Eastern and Western Australia, the former of which are managed by its subsidiary Gold Mines of Australia. The groups diverse interests by no means follow the course of a static investment company and continuous exploration work together with the pursuit of an expansionist policy undertaken through the years has enabled the Corporation to become one of the largest mining finance houses in Australia.

To consider the more adverse side of the group picture, the company whose fall in revenue warrants particular attention is New Coolgardie. As the table shows net profits made by this company fell to a very low level during the year. This is a great disappointment particularly in view of the good trend of profits established since 1951. Three main causes are given as the explanation for this occurrence—the mill grade dropped from 10.75 dwt. per ton to 9.36 dwt.; costs rose by 12.9s. per ton and premium gold revenue fell by £24,482.

The second largest factor in the fall in group revenue was the drop in Central Norseman Gold Corporation's working profit by about £100,000 from last year's total. The figure of £514,394 is still, however, extraordinarily high and should be compared with working profits in 1951 which were barely £130,000 and which rose sharply during the next year to over £600,000. The major causes for the fall in profit of this mine were the increase in operating costs of 5.92s. per ton together with a drop of over £50,000 in premium gold revenue.

The other property of the group to show substantially lower profits during the period under review was the Central Victoria Dredging Co. During the year although a greater volume of ground was dredged the grade of gold recovered fell sharply, and this together with the disappearance of premium gold revenue was responsible for the fall. The lower total of gold recovered was mainly due to the operations in the Jim Crow area where, although a greater number of cu. yd. were treated, only 5,479 oz. were recovered as against 7,167 previously. It has since been reported that dredging operations in this area have been ceased.

The other side of the picture is most encouraging and does a great deal to illustrate the corporation's continuing progress. This year a profit was made by the Great Western Consolidated Mine, which only started production in November, 1952, against the previous year's loss, while G.M.K. (Aust.) made larger profits and paid a higher dividend. Apart from these satisfactory gains considerable progress has been made in the field of prospecting with Gold Mines of Australia's uranium discoveries in Queensland and encouraging results from Kalgoorlie Southern's diamond drilling campaign south of the "Golden Mile."

The year's operations at Great Western Consolidated show that much progress has been made in expanding mill throughput since production commenced. Additionally, nearly 4,000 ft. of development was accomplished at the Copperhead Mine, and also a considerable amount of exploratory diamond drilling. Ore reserves at the mine estimated as at March 31, 1954, showed that 431,000 tons of quarry ore with a grade of 2.3 dwt. and 292,000 tons of underground ore with a grade of 4 dwt. were available.

An increased milling rate, together with a higher grade of ore sent to the mill by gold mines of Kalgoorlie (Aust.) during the year raised net profits by about £20,000 despite the fall in gold premium revenue. The company holds a 23 per cent interest in Kalgoorlie Southern Gold Mines.

Perhaps one of the most important operations to the future of the group is being carried out by Kalgoorlie Southern Gold Mines which is seeking a repetition of the Kalgoorlie "Golden Mile" ore veins south of this area. Last May shareholders of

Gold Producing Companies	*W.M.C.'s direct Holdings of issued capital Shares/Stock*	*%*	*Year to March 31*	*Tons Milled*	*Grade (dwt.)*	*Yield (oz.)*	*Bullion Revenue§ £A*	*Gold Premium £A*	*Taxation £A*	*Net Profit £A*	*Dividend s. d.*	*Carry Forward £A*
Central Norseman £A650,000 in 5s. shares	1,312,500	50	1954 1953	155,314 161,444	10.0 9.7	77,410 78,591	1,210,428 1,229,714	18,538 71,512	788 2,270	514,394 614,745	3 0 2 6	361,042** 550,579
G.M.K. (Aust.) £A768,438 in 10s. stocks	462,227	30	1954 1953	196,471x 172,881x	5.8x 5.7x	56,908x 48,948x	878,749 757,290	12,528 44,855	63 Nil	184,202 164,319	1 6 1 3	165,897 102,692
New Coolgardie £A511,200 in 10s. shares	534,062	52	1954 1953	68,393 65,029	9.4 10.7	32,000 34,956	495,473 541,823	7,505 31,987	131 229	1,676 140,351	6 Nil	247,950 270,124
Gt. Western Consol.* £A1,768,000 in 10s. shares	500,000	14	1954 1953	420,129 119,187*	2.4 2.4	51,143 14,128	792,907 218,888	12,909 11,575	Nil 505	14,445 L 11,800	Nil Nil	DR6,734 —
Central Victoria Dredging £A390,000 in 10s. shares	395,500	50	1954 1953	2,778.6† 2,282.5†	1.8‡ 2.4‡	10,576 11,220	162,772 173,419	2,274 10,212	16 11	4,467 44,189	Nil Nil	148,570 144,103
PROSPECTING ETC. COS. Gold Mines of Australia (a) £A52,219 in 2s. 6d. shares	260,500	62	1954	Also engaged in uranium exploration with W.M.C. (c)								
Victoria Gold Dredging £A129,500 (b)	110,600	44	1954	Ceased operations, and now holds 125,000 fully-paid shares in Central Victoria Dredging.								
Kalgoorlie Southern £A185,225 in 5s. shares	154,240	20	1954	Company is testing areas south of the Golden Mile by diamond drilling for a repetition of the Kalgoorlie system of ore veins.								
Champagne Syndicate	52,000	100	1954	Purchased leases of Mt. Charlotte (Kalgoorlie) during year.								

* Production commenced in November 1952. W.M.C. holds an option until May 25, 1955, to subscribe for 500,000 10s. shares of this company at 2s. discount.
† Million cu. yd. dredged.
‡ Grains per cu. yd.
§ After realization charges.
(a) Company acts as General Managers and Consultants to Central Victoria Dredging, Morning Star (G.M.A.), Mount Coolon Gold Mines and Victoria Gold Dredging.
(b) 9,000 £1 shares fully paid and 241,000 £1 shares paid to 10s.
(c) In addition, test drilling was started during the year on the Cos. Stawell lease.
x Excluding tribute ore.
** £313,931 put to General Reserve.
L indicates loss.
NOTE—For results for the first 16 weeks of the current year see page 271.

the company were asked for more money for an extension of this drilling, the results of which were at that time described as "encouraging." Accordingly an issue was made involving 324,240 shares payable as to 1s. on acceptance with a further 1s. to be called up but not, it is estimated, before 1955. The company's progress during the year to the end of June, 1954, was included with the report and accounts to March 31, 1954, and disclosed that the four original boreholes have been completed or abandoned while a site for a fifth is being prepared. It is considered that the funds from the new issue should be sufficient to carry out the drilling operations envisaged.

Besides its management activities Gold Mines of Australia has perhaps one of the most interesting assignments of the whole group for in conjunction with the Western Mining Corporation it has undertaken to search for uranium in Eastern Australia. By agreement the two companies participate in exploration activities as to 75 per cent for W.M.C. and 25 per cent for G.M.A.

On June 16, 1954, it was announced that uranium discoveries had been made and that the company had applied for leases and secured options over extensive uranium bearing areas in the Cloncurry district. It was emphasized, however, that there is as yet no indication as to whether uranium exists in economic quantities.

Of W.M.C.'s two remaining direct interests, the Victoria Gold Dredging Co. has ceased dredging operations, its leases now being worked out. While the other, a wholly owned subsidiary called the Champagne Syndicate, has announced that it has bought the leases of Mount Charlotte (Kalgoorlie Gold Mines) at the northern end of the Kalgoorlie gold fields.

From a review of W.M.C.'s current and potential activities it becomes clear that this is an organization worth careful consideration. Admittedly last year's operations have seen some setback in its remarkable record of expansion but it would not be unduly optimistic to hope that these reverses may soon be overcome. Meanwhile there seems to be little threat to the corporation's distribution which is reasonably well covered. At a current price of about 13s. 6d. a return of nearly six per cent is at present obtainable and in view of the growth character of the holding can be regarded as not unattractive.

Morning Star's High-Grade Ore

Directly responsible for the increase in revenue earned by Morning Star (G.M.A.) during the year ended March 31, 1954, was the sharp advance in the grade of gold recovered which rose to 19.39 dwt. per ton against 16.33 dwt. per ton during the previous year. While it is not unusual for this company to report substantial fluctuations in both mill grade and development values, last year's recovery must have been something of a record.

Year to Mar. 31	*Milled tons*	*Yield ozs.**	*Grade (dwt.)†*	*Cost A Shill.‡*	*Ore Reserves Tons*	*dwt.*
1954	18,167	17,199	19.39	167.5	40,000	12.5
1953	19,606	15,548	16.33	147.1	50,500	15.5

* Excluding 580 tons of concentrates assaying 14.2 dwt. per ton recovered and stacked for treatment at a later date (1953—231 tons assaying 47.4 dwt.)
† Average grade of production including gold in concentrates.
‡ Per ton, including development charges.

Dividends paid on the company's issued ordinary capital of £100,000 in 4s. shares was doubled at 2s. per share as against 1s. per share for the previous year.

Year to Mar. 31	*Gross Revenue*	*Mining Costs*	*Tax*	*Net Profit*	*Dividend*	*Carry Forward*
	£A	£A	£A	£A	£A	£A
1954	276,587	154,240	45	114,732	50,000	69,268
1953	260,334	145,252	3	109,316	25,000	138,908

Mr. G. Lindesay Clark is chairman. Meeting, Melbourne, September 13.

Mount Coolon Pays 6d.

During the year ended December 31, 1953, Mount Coolon received, in addition to its income from Government securities, dividends on its holding of 102,100 Morning Star (G.M.A.) shares amounting to £15,315, thus increasing its total revenue substantially over that of the previous year when the distribution from this source came too late to be taken into its accounts. Mount Coolon also holds 35,300 shares of 10s. each in Great Western Consolidated.

Year to Dec. 31	*Gross Revenue*	*Working Expenses*	*Taxation*	*Net Profit*	*Dividend*	*Carry Forward**
	£A	£A	£A	£A	£A	£A
1954	15,574	1,228	30	14,346	15,000	31,334
1953	106	629	NIL	Dr. 523	NIL	32,393

* Subject to payment to Gold Mines of Aust. of management fees of 2½ per cent on amounts distributed to shareholders.

A dividend of 6d. per share was paid on the issued capital of £100,000 in 10s. shares. Since the end of the company's financial year a further dividend of 6d. per share has been paid by Morning Star in respect of that company's financial year to March 31, 1954. Mr. G. Lindesay Clark is chairman. Meeting, Melbourne, September 13.

Rand and O.F.S. Returns

The eagerly awaited initial production and profit figures from President Brand provided the centrepiece of the Rand and O.F.S. August returns. Although the mill grade achieved of 8.2 dwt. per ton is certainly good—in fact, extremely good—it cannot be taken as more than a faint indication of what can be looked for in the months ahead. Indeed, it is instructive to note that President Steyn, when making its debut into the list of producers, reported a profit of only £1,008.

Other mines meriting attention on their latest monthly results were Western Holdings, Doornfontein, Ellaton, President Steyn and Randfontein. Welkom's return, though showing a 10 per cent increase, was disappointing, while St. Helena continued to move slowly along its upward course.

Freddies Consolidated lowered its working costs by 2s. per ton milled to 46s. 8d. per ton and reduced its working losses to £18,481 compared with a loss of £23,351 in July. Earlier this week this company announced that it hoped to begin pumping uranium slimes, through pipelines now under construction, to Welkom's treatment plant before the end of this year.

Our usual statistical table of the Rand and O.F.S. producers will appear in next week's issue.

Mazapil Again Passes Dividend

Due to falling lead-zinc prices and rising labour costs during the year to December 31, 1953, the Mazapil Copper Company, the Mexican copper, lead, zinc producer and smelterer made a group profit of £8,974 against £168,162 in the preceding period. After expenses and taxation, however, a net loss of £21,214 resulted against the previous year's profit of £61,266. No dividend has again been recommended on the company's issued capital of £600,000 in ordinary stock units of £1. Mr. Thomas P. Berington is chairman. Meeting, Manchester, September 21.

British Burma Pet. Pays After Fourteen Years

The consolidated accounts of the British Burma Petroleum Co. for the year ended March 31, 1954, show that total revenue earned during the year was increased to £86,479 against £82,402 previously. After all expenses including the large provision for diminution in value of investments of £150,000 (£138,737) the company returned to the dividend list after 14 years with a dividend of five per cent on its issued capital of £750,000 in 4s. shares. This payment absorbed a total of £37,500 and an amount of £104,479 as against £241,253 was carried forward to the balance sheet. Fuller details regarding this company will be given next week. Mr. A. P. Faickney is chairman. Meeting, Johannesburg, September 30.

Increasing Oil Outputs

Some reflection of rising world oil production can be seen from the output figures for the nine oil companies listed below, seven of which show accumulative increases in output. Lobitos oil, with seven months completed of its current financial year, has maintained its reasonably good progress which has challenged recent operations in recent years. In 1953 this company showed a small decline owing to the fall in freight rates, but if the present steady improvement in production continues during the next five months, earnings from additional oil produced should go a long way towards offsetting this adverse effect. The company's main oil producing interest in Peru is held through a subsidiary company.

OIL OUTPUT FOR JULY

Company	*July (in tons)*	*Months Since Year End*	*Cumulative Totals (in tons)*	
			This year to date	*Last year to date*
Anglo Ecuadorian	27,711	4	108,313	104,426
Apex Trinidad	37,996	10	372,794	370,890
Kern Oilfields	26,794	2	53,513	56,278
Kuwait Oil*	3,698,028	6	21,954,151	20,589,588
Lobitos Oil	43,650	7	289,131	265,255
Trinidad Central	8,937	7	61,942	55,314
Trinidad Leaseholds	78,949	1	78,949	75,875
Trinidad Petroleum	40,469	12	474,555	489,261
Ultramar Oil†	109,626	7	747,155	735,550

Note—1 ton taken to equal seven barrels.
* June figures.
† Output figures are for S.A.P. Las Mercedes in which Ultramar holds a 50% interest.

MINE RETURNS—JULY

Australian Gold Returns—July

Of the Australian gold producers—July and cumulative figures in respect of which appear in the following table—those belonging to the Western Mining Corporation group provide the greatest points of interest. All of these companies, including South Kalgurli, recently acquired by Kalgoorlie (Aust.), and Boulder Perseverence, whose group membership waits only upon acceptance of the recent offer by G.M.K. (Aust.), have now completed four months' operations of their current financial year.

AUSTRALIAN GOLD RETURNS — JULY

Company	4 weeks to July 13 1954		4 weekly period since year-end	Current Financial Year Total to date		Last Financial Year Total to date	
	Tons (000)	Yield (oz.)		Tons (000)	Yield (oz.)	Tons (000)	Yield (oz.)
Boulder Perseverance	10·5	2,058	4	40·8	9,368	39·1	9,355
Central Norseman	12·2	7,246	4	48·4	26,970	48·6	25,406
Central Victoria*†	188·3	269	4	823·6	2,042	802·1	2,672
Golden Horse Shoe	82·0	678	7	543·4	6,162	533·3	5,317
G.Ms of Kalgoorlie	15·5	4,500	4	60·9	16,752	58·5	15,851
Kalgoorlie Enterprise	5·7	1,738	4	22·3	6,570	18·1	5,210
Morning Star	1·4	826	4	5·5	4,158	5·6	6,466
New Coolgardie	4·9	2,243	4	18·8	9,299	21·2	9,959
North Kalgurli	19·6	4,121	7	124·1	30,853	145·1	33,393
Sons of Gwalia	7·6	2,232	7	54·5	12,247	61·3	13,95[illegible]
South Kalgurli	8·6	1,652	4	32·7	6,646	35·7	6,867

* Cu. yds. dredged.
† As under present economic condition all profitable dredging ground in Jim Crow Area has now been treated, dredge was closed down July 13, 1954.

Amongst these companies, Central Norseman, currently the most important revenue producing member of the W.M.C. Group, shows an increase in the number of oz. of gold produced over the corresponding period of last year. But when making a comparison between this company's current and previous financial years, it should be borne in mind that during the year to December 31, 1953, a sharp fall in profit was experienced due, primarily, to an increase in operating costs. The higher grade of ore at present being sent through the mill will undoubtedly do a great deal to counter this adverse factor, and any continuance in the improvement of gold production may have a favourable affect upon future dividends. On the other hand, Central Victoria reports a considerable fall in the area of ground dredged and a corresponding drop in the amount of gold recovered during July, owing to the closing down of dredging operations in the Jim Crow area.

Some interesting information is disclosed in the No. 19 Progress Report which was recently issued by W.M.C. covering the twelve weeks from March 24 to June 15, 1954. At Central Norseman's Princess Royal Mine a small amount of ore sampled revealed a value of 20.1 dwt. per ton over 52 in.; from the Phoenix Mine a similar footage gave a value of 11.9 dwt. over 57 in. At New Coolgardie, whose operations were so disappointing during the company's last financial year, and whose current cumulative production figures as yet show no immediate signs of recovery, development resudts reveal values ranging from 6.8 to 9.4 dwt. per ton over widths of 43 in. to 56 in. Reports from Fraser's Mine on Great Western Consolidated's property showed that the inclined borehole at present being sunk intersected the Fraser's lode giving good, if erratic, values at shallow depths. Values obtained varied from 8.1 dwt. to the extraordinarily high figure of 600 dwt. which was obtained from the footwall reef in the sample of which free gold was seen. Gold Mines of Kalgoorlie (Aust.) reported 703 ft. developed in ore, of which 29.1 per cent gave values of 8.8 dwt. per ton over 66 in. Work continued in the northern and southern leases of this property, and in the latter area some high values were reported over good widths up to 88 in.

Southern Rhodesian Gold Returns—July

Due to about 1,500 tons of accumulated gold concentrates having been treated by Falcon Mine's newly installed roasting unit, the working profits of the company during June and July reached unprecedented levels. The amount of gold produced during July at 3,155 oz., is well ahead of the 2,588 oz. produced during October the first month of the company's financial year. An important stage in the company's operations has therefore now been reached for as Mr. E. B. Papenfos, the chairman of the company, revealed in his address to shareholders; "the payment of a dividend was only awaiting the installation and successful operation of the fluo-solids roaster". It will be remembered that at April last upon a total of 8,323 tons of concentrates at an average value of 30 dwt. was stockpiled. This important factor has also played a useful part in helping to provide the recent activity in Falcon shares, which have recently been a good market and now stand at about 9s. 3d. as compared with their low point of 7s. 2d. this year.

SOUTHERN RHODESIAN GOLD RETURNS — JULY

Company	July, 1954			Months since year end	Current Financial Year Total to date			Last Financial Year Total to date		
	Tons (000)	Yield (oz.)	Profit (£000)		Tons (000)	Yield (oz.)	Profit (£000)	Tons (000)	Yield (oz.)	Profit (£000)
Arcturus	2·9	905	2·9	1	2·9	905	2·9	3·0	—	3·3
Cam & Motor	24·5	7,723	45·3	1	24·5	7,723	45·3	24·0	7,086	45·0
Connaught	0·8	254	0·8	1	0·8	254	0·8	0·8	—	1·6
Falcon Mines	17·5	3,155	16·4†	10	168·9	28,042	87·2	149·8	22,449	44·4
Globe & Phoenix	6·0	3,706	23·5	7	42·4	25,287	163·6	42·0	23,498	148·6
Motapa Gold*	19·0	2,539	3·1	7	128·5	17,515	23·8	149·5	16,870	8·0
Muriel Mine	3·1	994	10·1	1	3·1	994	10·1	0·9	—	5·5
Rezende	6·3	1,035	0·6	7	46·4	8,186	1·8	46·4	8,223	14·9
Tebekwe	8·0	982	1·6	1	8·0	982	1·6	7·8	—	2·6

*Excluding premium gold sales
† Working Profit includes £203 received during the month in respect of gold produced during May.

From Cam and Motor a rise in the grade of ore milled is disclosed, while profits made by Motapa in the first seven months of the company's current financial year are running at about treble last year's figure. Much headway is thus being made towards justifying the earlier promise of this mine, which a considerable set back, subsequent to its formation in 1946 due, largely, to the difficulties of treating the refractory nature of its ore.

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Miscellaneous Gold Returns—July

It would be interesting to know what the future holds for Brazil now that the strong influence of the Vargas Presidency has been removed.

In the months ahead, which will see the former Vice-President Sr. Café Filho at the helm are not likely to be without political upheaval. But until the next President is chosen in January 1956 interim presidency will be characterized by the pursuit of the policy designed to keep a sterner hand over inflationary pressures.

MISCELLANEOUS GOLD RETURNS — JULY

Company	July, 1954		Months since year end	Current Financial Year Total to date		Last Financial Year Total to date	
	Tons (000)	Yield (oz.)		Tons (000)	Yield (oz.)	Tons (000)	Yield (oz.)
Br. Gu. Consol.*	218·4	1,503	7	1362·1	11,823	1356·0	7,603
Clutha River*	260·0	404	4†	979·0	1,389	842·0	2,128
Frontino	11·3	5,849	7	72·2	40,588	67·1	32,617
Kentan (Geita)	22·0	3,420	1	22·0	3,420	23·0	3,400
New Gu. G'fields	3·6	1,556	10	33·0	14,629	24·3	18,254
Saudi Arabian‡	2·7	L £12,783	6	30·3	£184,928	55·2	£89,390
St. John d'el Rey§	28·0	£125,000	7	180·9	£821,649	202·5	£1,220,079

* Cu. yds. dredged
L Denotes loss.
‡ June figs.
† 4-weekly period since year end.
§ Estimated realizable value.

Meanwhile, results for the first seven months of the current financial year of St. John d'El Rey, the Brazilian gold producer, show that a distinct improvement has been made since the low levels of March and April this year at which time the realizable value of gold produced was no more than half that of the corresponding period of the previous year. The £1 ordinary shares of St. John d'El Rey, which during the year touched a point of 21s. 6d. were last week dealt in at around 16s.

On the other hand, British Guiana Consolidated and Frontino, show substantial increases in gold output to date compared with the like period a year ago.

July Tin Returns

The 5s. ordinary shares of Renong Tin Dredging have recently been a good market and are currently being dealt in at around 13s. 6d. as compared with the lowest point touched this year of about 8s. 4d. due to the vastly increased production during the year ended June 30 last when 1,109 tons in concentrates were produced compared with 357 tons in the preceding year. This good performance was maintained in July when 138 tons were produced, an increase of over 70 tons on the comparable output in the corresponding period a year ago.

The commencement of trials by Southern Kinta's No. 3 Dredge, which was previously located in the Chemor section, took place on July 3 and may now once more be contributing to production. Meanwhile the shares of this company have been brought up to 17s. 8d. at which level they now stand, as compared with a low point reached this year of 13s. Cumulative figures in respect of the company's production show that the output is running well above last year's level.

However, apart from activity in the shares of one or two particular companies, attention has recently been somewhat diverted from Malaya towards the Nigerian Tin and Columbite producers. Amongst these Amalgamated Tin, the 5s. shares of which now stand at 15s. 6d. have received particular attention. Production of both tin and columbite by this company are running well ahead of last year's comparable figures.

Bisichi was also not neglected and the 2s. 6d. shares of the company, which at one time this year fell to 4s. 6d., now stand at about 6s. 4d. and return the very useful yield of over 15 per cent. Here again substantial increases have been made in both tin and columbite production, particularly in the case of the latter where output is running at practically double last year's level.

Amongst the miscellaneous producers the full report and account recently received from Geevor Tin Mines, the Cornish producer, included the unexpected announcement that an accumulation of copper concentrates had been sold for approximately £50,000. This amount will be taken into the current year's revenue. During the year ended March 31, 1954, the company's total income dropped from £360,047 to £291,161 and a dividend of 1s. 9d. per 5s. unit was paid on the issued capital of £103,200 as compared with 2s. 3d. for the previous year. A final dividend of 70 per cent has been recommended by Beralt Tin and Wolfram which brings the total distribution for the year to a total of 120 per cent on the issued capital of £331,000 in stock units of 5s. This compares with 180 per cent for the previous year.

Preliminary figures issued by the company for the year ended March 31, 1954 show that a total of £748,851 remained for appropriation after depreciation, etc., as against £1,369,496 in respect of the previous year

JULY TIN OUTPUTS IN TONS OF TIN CONCENTRATES

Company	July	Months since year end	Financial Year to Date This	Financial Year to Date Last	Company	July	Months since year end	Financial Year to Date This	Financial Year to Date Last
EASTERN					**NIGERIA**				
Ampat	106½	7	652½	714½	Ex-Lands	38	7	363	342
Batu S.	14½	10	195	161½	Filani	5½	7	24	35½
Berjuntai	62½	3	173½	141½	Gold & Base	44	7	275	317
Ipoh Tin	42½	4	156½	—	Gold & Base†	14½	7	68½	43
Kamunting	99½	4	376½	451½	Jantar	16	10	168	182
Kinta K.	23½	4	94½	87½	Jantar†	18	10	178	186
Kinta T.	27½	7	179½	181½	Jos Tin	16	12	150½	156½
Klang River	22	4	137½	155½	Kaduna P.	6½	7	41½	64
Kuala K.	209	4	802½	672½	Kaduna S.	48	7	179½	168
Kramat Tin Dr.	22½	4	56½	—	Keffi	13	4	39	—
Kuchai	38½	10	266½	413	Keffi†	44	4	133½	—
Larut	120½	7	635½	302	Lond. Nig.	35	4	92	72
Lower Perak	177½	3	589½	206½	Lond. Nig.†	—	4	4½	—
Malaysiam	12½	4	40½	21	Naraguta Ex.	8½	7	33½	39½
Pahang	220	12	2640	2640	Naraguta K.	16½	7	93	73½
Rahman H.	37	1	37	43½	Naraguta T.	18½	7	115½	134½
Rantau	46½	1	46½	53	Naraguta T.†	8	7	48	28½
Rawang Conc.	54½	4	229½	249½	Ribon	17	4	39	35
Rawang Tin	39½	4	177	—	S. Bukeru	8½	7	47½	41
Renong	138	1	138	66½	S. Bukeru†	—	7	2	—
S. Kinta§	385	4	1702½	1294½	Tinfields of Nig.	2½	4	9	11½
Siamese Tin	140	7	1088½	—	Tinfields of Nig.†	2½	4	9½	—
Taiping	59	7	385½	—	U. Tin	14	1	14	8
Tambah	23½	7	147½	46	U. Tin†	0.2	1	0.2	—
Tanjong	66½	7	423½	465					
Tongkah	40½	1	40½	31½	**MISC.**				
NIGERIA					Beralt Tin	6	4	20	32
Amal. Tin	399	4	1336	1252	Beralt Tin‡	180	4	649	720
Amal. Tin†	48	4	194	185½	Geevor	55	4	217	228
Bisichi	51	7	321	282	Sth. Crofty Tin	54	7	354	316½
Bisichi†	26	7	139	89	Sth. Crofty Tin ‡	—	7	4½	—

† Columbite.
‡ Wolfram.
§ Kinta No. 3 dredge (ex Chemor) commenced trials on July 3.

Coal Outputs for July

Because of the unique position occupied by Wankie Colliery as the only coal producer in a 500 mile radius from Southern Rhodesia, interest invitably tends to focus its production figures. Although Wankie's total production, this year, looks like being very much the same as that for the previous financial year, a great deal more than this had, at one time been expected.

COAL OUTPUT FOR JULY

Company	July (in tons)	Months Since Year End	Cumulative Totals (in tons) This year to date	Cumulative Totals (in tons) Last year to date
Amal. Coll. of S.A.	613,555	7	4,032,595	4,397,732
Apex	83,520	7	560,435	577,096
Blesbok	43,533	7	316,679	364,142
Coronation	84,508	7	605,263	641,143
Dundee	33,065	7	227,547	257,935
Natal Navigation	109,617	1	109,617	111,146
New Clydesdale	64,848	1	64,848	67,462
New Largo	100,103	7	557,007	307,771
S.A. Coal Est.	136,437	1	136,437	136,269
Springbok	69,027	7	480,409	514,621
Transvaal & Delagoa	112,538	11	1,297,378	—
Van Dyks Drift	45,706	7	337,721	347,249
Vierfontein	90,165	7	519,563	87,619
Vryheid Cor.	41,781	7	292,474	294,379
Vryheid Cor.*	36,211	7	246,258	255,051
Wankie Coll.	226,256	11	2,233,894	2,233,592
Wankie Coll.*	13,075	11	129,553	133,113
Witbank	129,973	7	926,186	912,996

* Coke

Final dividends have recently been declared by the Transvaal and Delagoa Bay Investment Co. and Witbank Colliery. In the case of the former, this distribution is below that of the corresponding period of last year, this was effected to even out the discrepancy between interim and final and the total for the year shows an increase to 50 per cent as against 47½ per cent on an issued capital of £360,750 in shares of £1. Witbank's payment shows no change, and the total of 17½ per cent for the year to August 31, 1954, was paid on an issued capital of £385,000 in shares of £1.

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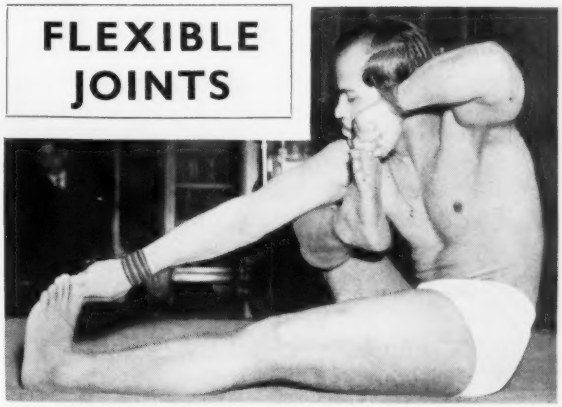

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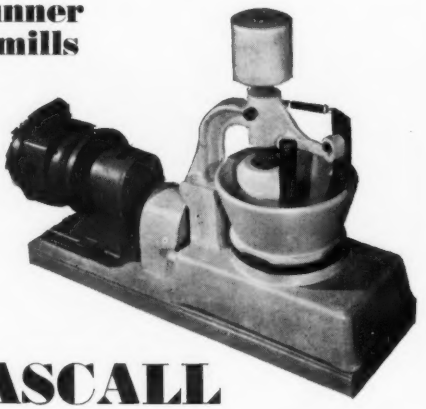

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